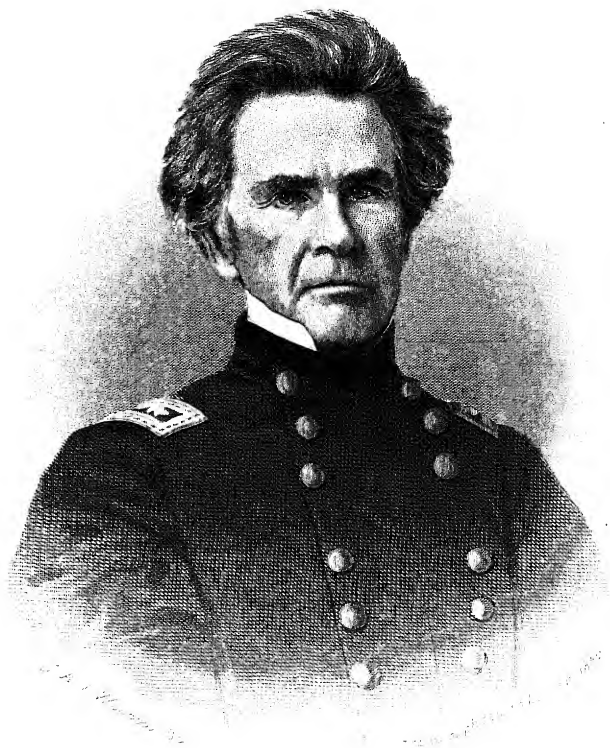




J. M. Mitchell

MSBY MACKNIGHT MITCHEL

ASTRONOMER AND GENERAL

A BIOGRAPHICAL NARRATIVE

BY HIS SON

F. A. MITCHEL



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PREFACE.

AT the time of General Mitchel's death an attempt was made to give to his countrymen an authorized account of his services in science and in the army. But the selection and arrangement of the material for the biographer was in itself an important feature, and there was then no one of his family sufficiently experienced to do the work. Besides, while his scientific record could have been given then as well as now, an account of his brief military career could not at that time have been written intelligently. He died before the work of suppressing the rebellion was half finished, during that earlier, darker period of the struggle when the nation was at its greatest peril, and was still groping for some strong, clear intellect to take the guidance of its armies, and bring order out of chaos.

This was no time to write war history. The events of that period must first be mellowed by distance; light must be thrown on the condition of that portion of the country then in rebellion, and hedged in by an impenetrable barrier of bayonets; twenty years of peace must elapse, with a continued flow of

records of both sides into the War Department of the United States to be published for general information. And not till now, a quarter of a century after the events occurred, are we sufficiently enlightened to give the part General Mitchel took in the struggle, even though it were, comparatively, a mere paragraph in the history of the war for the Union.

At the commencement it was my intention to gather such documents as would in themselves form a continued narrative, — a sort of autobiography. This was found to be impossible. There were frequent gaps, and the manuscripts required careful editing. But so far as has been practicable, the original plan has been adhered to, and the story given in General Mitchel's own words wherever it could be done without serious detriment.

The search for and blending of these records, and the study of the testimony of others inextricably interwoven with them, has taken up a great deal of my time at intervals during the past five years. The portion relating to scientific work, though extending over a far greater period, was comparatively easy writing. But as volume after volume of war history has successively appeared, I have been obliged to go over the military portion and make such slight changes as would accord with the new light. The completion of the publication of the official records of the War Department to the end of the year 1862, when General Mitchel died, probably renders any further change unnecessary.

I would prefer that this work had fallen into abler hands. Another might have given a more attractive view, but I am convinced that few could have spared the time and taken the trouble for the search and study required to give a faithful and correct one.

F. A. MITCHEL.

EAST ORANGE, N. J.,
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ORMSBY MACKNIGHT MITCHEL.

PART I. SCIENCE.

I.

WILDERNESS.

ON a bright spring morning more than eighty years ago—it was the 1st of April, 1804—the wagons of a party moving westward lumbered over a road which led from Hampshire County, Virginia, to the Ohio River. At the head of the train, on horseback, rode a man whose constant supervision marked him as the leader. Beside him rode his wife, a small, delicate woman, and their daughter, a young girl of perhaps eighteen or twenty years of age, both mounted on small, easy-going horses. There were two wagons, the one drawn by five and the other by four horses, and each driven by a negro slave. Others, among them the sons of the couple who rode at the head, some of them nearly grown to manhood, trudged along on foot; while the little children were snugly stowed away in the wagons.

John Mitchel, the leader, had long been a prominent citizen of Hampshire County. He was of Scotch-Irish descent, a man of fine physical proportions, and his motions rapid and energetic. He was gifted with a fine mind, and well educated for that day. He had been justice of the peace, and colonel

of the militia. His profession, like that of his ancestors, as far back as can be traced, was surveyor. He was especially noted for his kind and charitable heart. He married early in life Elizabeth MacAlister, of good Scotch stock, with whom he lived an exceptionally happy life. A large family of children sprang up about them, and at the time this narrative commences, the older ones, as has been said, were nearly grown.

The family had lived contentedly on their land in Virginia until new territory, lying further west, began to be opened, and the virgin soil, far more easily and cheaply worked, rendered their stony ground nearly valueless. Seeing his property day by day depreciating, the head of the family resolved to seek a new home where the country was in a progressive instead of a retrograde condition.

Having sold his effects, except such articles as could be best transported, with his own family, and that of a neighbor who had decided to join him, he set out for Kentucky, where numbers of Virginians were at that time going to seek new homes. The party wended their way towards the Ohio River, where they expected to embark for the Kentucky shore. They toiled slowly over the mountains which intervene between their old homestead and the river, subject to occasional mishaps such as the overturning or breaking down of a wagon, till they arrived, on the first evening of their journey, at a little town called Frankfort. Here they spent the night.

In the morning, after everything was in readiness to proceed, the expedition was thrown into a state of consternation at finding that the eldest daughter in the accompanying family was missing. Her lover,

not relishing her removal, had raided the train and carried her off. The mother was loud in her lamentations, but they were of no avail; the marriage ceremony had been performed before daylight, and the party were obliged to proceed without the damsel.

Nor was this the last trial of the kind that they were subjected to. The removal of so many young girls from the country produced a flutter which did not subside until the party were well away from their native State. A cousin suddenly joined them and rode on in front by the side of the pioneer's eldest daughter. Coming to a fork in the road, he drew rein, and there gave the maiden her choice of going on to a wilderness, or riding with him to Gretna Green. The firmness of the girl, who preferred to stand by her parents in their new home in the west, withstood the lover's blandishments, and he was suffered to ride away alone.

The party arrived at Redstone, now Brownville, on the Ohio River, without further mishap or feminine loss. Here they found a large flat-boat ready for them (steam had not yet been introduced), which had been bespoken the previous autumn.

Pushing out into the stream they commenced a slow descent with the current of La Belle Riviere, with her bluffs, her bottoms of mammoth timber, and islands, at that season clothed in flowers; past Pittsburgh, past Blennerhassett's Island with its weeping-willows, Marietta, and other settlements. Cincinnati was then a small village. When they came to Louisville it was night, and, being unable to effect a landing, were in terror lest they should be swept over the falls and swamped. It was a long and anxious night, during which each moment they drew nearer the

dreaded falls. But morning fortunately dawned in time, and they were enabled to reach the shore.

On Sunday, the 1st of May, one month after his departure from Virginia, the pioneer tied his boat to the shore at the mouth of Highland Creek, now the dividing line between Henderson and Union counties, Kentucky. They had passed the settlements of Virginians higher up the river, and floated on to the extreme verge of civilization. Looking out from their boat that Sunday morning, the prospect was anything but encouraging. There was the river, and the forest, but little else. Word soon reached some settlers near by that a new family had arrived at the mouth of Highland Creek, and several woodsmen, who were to be their neighbors, called to pay their respects. They produced a distressing impression, especially on the more delicate women, dressed as they were in hunting-shirts, and armed to the teeth. It has been said by a family chronicler who witnessed the ceremony of this first visit, that the pioneer then realized the position in which he had placed his family. His heart sank within him, and he was never the same man afterwards.

Learning of an unoccupied cabin some six miles further down the river, they dropped down there the next day. Here they landed and took possession of the sorry abode. Additions were built, ground cleared, and preparations made to spend the summer.

If the few people inhabiting Kentucky at that time were rough and uncouth, the face of nature was very beautiful. The forest trees shot up to an immense height. The wild rye, peavine, and other herbage were interspersed with various flowers; while the woods were vocal with the songs of birds, among

which the piping of the American mocking-bird rang clearest. The country teemed with deer, bear, and wild turkeys. A lake near by furnished an abundance of fish. Grapes, blackberries, persimmons, wild cherries, mulberries, nuts of various kinds, especially the pecan, were to be found in every direction. In the rear of the cabin a chain of ponds extended for miles up and down the river. These ponds were frequented by large flocks of aquatic birds, from the most diminutive snipe to the tallest crane. In the fall, wild geese and brants came there morning and evening, filling the air with their quacking. Pelicans and swans visited the river, but seemed to regard themselves too high-born to mingle with their more common neighbors of the ponds.

The pioneer purchased a plantation, or rather what he proposed to make a plantation, eight miles in the interior, at what is now Morganfield, in Union County. During the summer he proceeded with his boys and his negroes to erect the necessary buildings for the reception of his family. On his return he found that an enemy had stolen in during his absence. The fever and ague—the first obstacle usually thrown out to resist the advance of civilization, and especially effective in these regions so rich in alluvial deposits and the debris of countless years of vegetation—had invaded his home, and had prostrated the little colony, both white and black.

In October he removed them to the new home. The sick recovered, and the work of preparation for the coming season commenced. Here, on July 28, 1809, the subject of this sketch was born. Daniel Mitchel, a brother some twenty years older, long afterwards wrote a series of letters to the then new-

comer, giving him an account of this early history of the family. In speaking of this event he says: —

Upon returning from a journey I learned that during my absence a very small but brilliant star had been discovered on the domestic horizon. Upon seeing it myself, I recognized a little brother that I took into my heart of hearts, where he has kept his place to the present moment.

It was soon after the birth of his youngest, his last child, that the pioneer made an effort—it proved a final one—to relieve his family from the necessity of remaining in a wilderness by attempting to find a fortune in the ground. Two miles from where he first opened his plantation was a place called the Chester Salt Licks, from there being many places which had been excavated in former years or ages by the buffalo. From this point down a small stream to Highland Creek, and down Highland Creek for some miles, were numerous licks. The ground around these licks, and between them, the buffalo had so trodden that trees were prevented from growing; but here and there were scattered many patches of hazel and blackberry bushes, together with the wild multiflora rose, and a variety of humbler flowers. Between these patches were carpets of beautifully green blue-grass. The planter sank a well among these licks with the hope of finding an abundance of salt water. He spent considerable time and money on the venture, but it was all in vain. His well was on the bank of Highland Creek, and despite his efforts, fresh water would pour in. He became discouraged, abandoned his well, and made no further effort to acquire a sudden fortune.

Though in a wilderness, he passed much time in study. He was fond of languages, and of mathemat-

ics and astronomy. The last summer of his life was spent in the study of Greek, having only a grammar and the Greek Testament for text-books. One day in the following December, while making a survey at some distance from his home, he noticed a coming storm. He strove to reach his house before it broke. In the effort he became greatly overheated and exhausted. After a restless night he was found in the morning to be hopelessly paralyzed.

He lay through the winter helpless and despondent. In March the wild flowers which grew so luxuriant in Kentucky were in full bloom. The child that had lately come to him would go out and gather them, and, bringing them into his father's room, would push a chair to the bedside, climb up, and put the flowers in his hand. This would cause a transient smile to cross the sad face. Before the spring passed into summer the father died.

It was at this period of hardship, disappointment, and affliction, that the child received his first impressions. The bright, happy period of childhood never came for him. Buried in the depths of a wilderness, many years younger than any of his brothers and sisters, with no playmates, without the means of amusement usual to children, the first six years of his life were passed in solitude. The sounds to which he listened were such as come from the depths of a forest. The little brain, unrelieved by toys and picture-books, was early drawn to notice natural objects, and found food for thought in the great trees towering about him, the clouds sailing over their tops, and the quiet heavens still beyond.

This is no fancy picture. An incident has been mentioned by the older brother in one of the letters

written years after, which shows the kind of thought that occupied the child's mind.

It was in the month of flowers. The spring opens six weeks sooner in the Green River Country than in Ohio. It was evening, and I took you in my arms and walked into the front yard. Brother P—— followed, and we stopped, he standing by my right side. The evening was exceedingly beautiful. The air was fresh and balmy, laden with the rich odors of ten thousand flowers. The birds had finished their vesper concert, and, head under wing, were hushed to rest. Some of the insect tribe were still in motion, among which might be heard the bellicose cricket and the tale-bearing katydid. When I spoke of the birds, I should have excepted the owl, sacred to Minerva. He might have been heard in the forest hooting his discordant notes to please his harpy-faced paramour. The wild beasts of the forest had lain down to rest — all except a few depredators, such as the wolf, the fox, and the opossum, and a few others who make night a foraging time. We were standing, as I said, — the two brothers: you on my left were gazing into the vast expanse, our vision somewhat obstructed by the density of the forest. The moon was careering across the spacious concave decked in a robe of ethereal blue sprinkled with thousands of gold and silver stars, and seeming to rejoice in her magnificent beauty as Queen of Night, and regulator of the ebbing and flowing tides. There was nothing said for some time. You were gazing with the deepest intensity at the heavens lit up with such a flood of glory, when, turning your head slowly, you fastened your eyes on mine. You appeared to be moved by some deep momentous thought. With the apparent gravity of a savant, almost with a gasp, you exclaimed: 'Mans can't make moons.' Your audience was small, but you never addressed one better prepared to appreciate your abilities as a lecturer. Of this you were soon made sensible by our almost smothering you with kisses. This was your first lecture. How I should delight to know the thoughts that passed through your infant mind before you

spoke ! The Holy Spirit appears to have answered your baby inquiries (for you were in your third year). You there received the idea of Omnipotence, and, thank God, you have never lost it.

One of the widow's daughters had married a Presbyterian clergyman, and had removed to Lebanon, Ohio. After many trials consequent to the death of her husband, influenced by the representations of her son-in-law, she decided to follow her daughter to a location wherein her children might have more advantages.

In the month of February, 1816, after a residence in the country of twelve years, mounting the stock of the plantation, the family commenced a journey of three hundred miles.

After traversing the distance over muddy trails and swollen streams, — the boy carried on horseback behind his older brother, — they came one morning to Covington, on the south bank of the Ohio River, and opposite Cincinnati. They crossed the river in a skiff. Just as the party left the shore a dark cloud came up, and before they were half across a storm of wind and rain broke over them.

There is a curious contrast in the helplessness of a child buffeted by the waves of the turbulent river, in sight of the very ground of his future conquests, and the same being grown to manhood, and overcoming all obstacles. Is there in the little brain a glimmer of future scenes ? May not to his vision, held in his mother's arms in the rocking boat, serene skies replace the storm clouds ? May he not see on the top of yonder hill, distinctly visible from the bosom of the river, a stone building ? its roof rolling to one side. A tube, its brass mountings reflecting the yel-

low rays, pointing to the sun before whose face the dark body of the moon is creeping? But a quarter of a century must first pass away. In the mean time let us follow events in order.

II.

FIRST INDEPENDENCE.

THE youngster who had been carried so far on horseback from the wilds of Kentucky was between seven and eight years old when the family reached Lebanon. At first he was instructed at home, and so carefully that he was soon advanced far beyond the usual attainments of children of his age. His brother-in-law, the clergyman, took a lively interest in him, and the mother was constant in her devotion to her youngest child.

The town of Lebanon was then a thriving village in the centre of a rich farming country. It was the centre of trade and of education and talent, and a point from which emanated a considerable influence. A number of Ohio's early distinguished citizens were then there. Some of them were children, and some had already attained to distinction. Judge McLean of the Supreme Bench, Governor Thomas Corwin afterwards Secretary of the Treasury and a distinguished orator, Governor Morrow, were either immersed in the active pursuits of life or giving promise of a distinguished career in the future.

The oldest brother, who had received a classical education in Virginia before the removal of the family to Kentucky, opened a school. The boy was placed under his tuition and set to studying Latin and Greek and arithmetic.

The advantages he had derived from being taught at home, together with a natural aptitude to learn, enabled him to enter classes composed of young men in many cases double his own age. He was thus soon lifted out of childhood into youth. The occupations and reading and ambitions of his classmates became his. He joined their Thespian Society, and their debating club, and during the period while he was from seven to thirteen years of age, he was in constant competition with those who were almost ready to enter upon the career of men.

Yet he was not one of those boys who strive for a general perfection at school, for the mere sake of being perfect. His ambition to excel in his classes was never a passion. He loved the school for its excitements, and especially because many young girls were his companions and not unfrequently his rivals for school honors.

There is a story told of his school days which shows a strong will, even in childhood. The scholars of the school he attended used to meet during the winter in friendly contest the scholars of another school. Upon being dismissed in the afternoon, these two factions would draw up in line of battle before each other and fight till one or the other was driven off the field. One evening the struggle had been unusually severe. The rival school at last began to gain an advantage. One by one their opponents dropped away. A small knot of boys tougher than the rest fought on, side by side. Gradually these also were one by one driven off the ground, till at last one little fellow, the Kentucky boy, was left to fight it out alone. He struggled on till he dropped from sheer exhaustion. "Boys," he

said, "you may kill me, but you shall never drive me off this field."

On another occasion he was called up before the master for speaking loud in school. He had been interested in a problem in arithmetic. Suddenly the scholars were startled by seeing him strike his head with his hand, and exclaim, unconscious of the rule and the silence he was breaking, "Old head, I knew you could do it."

These pleasant school-days had their ending. The only property possessed by the family was the lands they held in Kentucky. The widow strove to pay the taxes and hold the property; but her means were too slender, and it was all lost. Their declining fortunes seemed to render it imperative that the youngest child should meet the fate of ordinary country lads of the time; and arrangements were made, without consulting him, to apprentice him to a tradesman.

He had been associating with those whose ambitions were in intellectual fields. His Thespian Society and his Debating Society had produced their effect. The Greek and Latin authors he had read had presented pictures to his young mind little in accordance with manual labor. He was but thirteen years old when this announcement was made to him. He not only peremptorily declined to enter into the arrangement, but told those who had proposed to make it for him that they were released from any further responsibility as to his affairs, and that he would manage them himself.

He commenced looking about at once for employment, and soon found a position in a neighboring town as clerk in a country store, where every variety

of article from a paper of pins to a plow was sold. Perhaps the term clerk is too exalted a name for his position. Yet it is not unlikely that, being bright, he soon came to be interested with matters of importance to his employer. However, his stay here was very short. One day, one of the members of the family of his employer took it upon herself to accuse him of falsehood. He walked away with so little hesitation or delay that he did not even deign to take his effects.

What he was to do now was a problem. He had scouted the plans of those who were his natural guides, and he had no thought of appearing at his home in Lebanon and presenting himself thus early beaten in the battle of life. He walked about, turning over his peculiar position, without work and without money, and too proud to ask assistance. Shunning the store he had left, his wanderings led him to the lower part of the town, where he met a countryman, one of the customers of his late employer, who had just loaded his huge Pennsylvania wagon, and with his powerful four-horse team was to start the following morning for Cincinnati. The boy proposed for the place of assistant teamster, agreeing to assist the countryman on the way as compensation for being permitted to make the journey with him.

The proposition was accepted, and, mounting one of the large wheel-horses, while his newly-found friend mounted the other, they drove to the farmer's home to finish, that night, the preparation for the long journey to be commenced on the morrow, at dawn.

The countryman did not question the boy as to

who he was, why he had left home, or whither he was going. Boys in those days early became their own masters, and McCoy the wagon-master gave himself no concern touching the history or destiny of his youthful assistant. He never even inquired if he intended to return with him from Cincinnati. The distance they were to travel was a little more than a hundred miles, and to make the trip would occupy not less than two weeks.

In the morning the two travelers were up before the lark, their horses were fed, groomed, and harnessed, their provisions and provender stowed away, their blankets and bedding rolled up and strapped, and as the light began to gild the east, mounting the wheel-horses, they set forward on their journey. The boy had for a companion a jolly, roistering, ruddy-faced, light-haired, blue-eyed teamster, devoted to his team, every horse of which he loved as he did his wife and children. He met the ruts, mudholes, corduroy-bridges, and creek crossings with philosophic indifference, confident that his own skill and the strength of his horses would conquer every opposing obstacle. No one is so impressible as a boy of thirteen or fourteen years of age; and it is not unlikely that the little adventurer gained comfort and courage from his friend so careless of obstacles, and received impressions destined to seriously influence his future methods.

They made from eighteen to twenty-two miles a day, according to the state of the roads. At noon they always halted to feed and water the horses, and take their own noon meal; and before sunset would select a camping-ground near where they could easily get water, and where there was plenty of loose wood

for a campfire. It fell to the lot of the assistant to kindle the fire, fetch the water, cook the meals, and prepare the blankets on which they were to make their beds, while McCoy devoted himself to the care of the horses. After supper they would lie down for the night that they might be ready for an early start in the morning. As the little adventurer lay beneath the friendly shelter of the wagon cover, while his less perplexed companion was buried deep in slumber, he revolved many schemes in his busy brain. Where there is intellect and courage and principle, allied to a healthy ambition, there is at least no surer means of bringing them out than by such stiffening of the powers against the world.

On the evening of the fifth day after they had started, they halted in the vicinity of Lebanon, the boy's former home. Here he heard that a young merchant whom he knew wanted a clerk to assist him in opening a store in Xenia, the principal village of an adjoining county. The assistant teamster concluded to give up his projected trip to an unknown city and join his friend who was embarking in the new enterprise. Very trifling incidents often turn the whole course of a life. It was fortunate that he did not proceed further, as he would probably not have so well succeeded in his future efforts to secure an education had he done so.

He was engaged at a salary of four dollars per month. He took leave of McCoy, for whom he had formed a real friendship, and who bade him adieu without the least evidence of surprise, and on the following morning, in company with his new employer, started for Xenia.

In his second place he continued for more than a

year. It was soon found expedient to change the location of the business, which was given up at Xenia and reëstablished at Lebanon. This was a very pleasant period for the boy. He enjoyed the confidence of his employer, who appeared well satisfied with his clerk, and frequently for two or three weeks together, during his absence in Cincinnati for the purchase of goods, left him in entire charge of the store. His home was in the midst of the family of the silent partner of his employer, to every one of whom he became devotedly attached. The oldest son had been his classmate, and as schoolfellows they had been strong friends. The daughters were lovely young girls, kind, amiable, and gentle, while the father and mother were just such persons as can rear such a family.

In this position, and in this home, possessing the consciousness of independence and of honorable employment, devoted to study and to thought, he was well situated to lay out plans for a future career. His tastes being intellectual, it is quite natural that he should cast about for some way by which he could secure an education. By accident he came upon a notice of the United States Military Academy at West Point. He was surprised to learn that the government provided quarters for the cadets, gave the highest scientific education, and paid each cadet a salary of twenty-eight dollars per month beside. The education and the salary were a tempting prize in the eyes of one who was receiving four dollars per month and no education.

He reflected long and deeply over any chances he might have of securing such an appointment. He consulted his mother in the matter, but she did not

seem to relish such a plan, remarking that the military academy was a school where young men were "trained to vice and the army." However, after much reflection, he made up his mind to try for a cadet's appointment. He wrote himself to several friends of his family then in Congress, among them Judge McLean and his brother, and the Hon. Thomas Ross, and begged their influence.

The result was awaited with great anxiety. To a boy so interested in study, with such natural independence, and no special love for trade, an appointment of this kind was certainly an object to be greatly desired. It was a period of great restlessness and chafing at delays in hearing from those who had his fate in their charge. It then took some weeks for a letter to go or come from Washington, and a boy of fifteen, if of any serious consideration to members of the government, was certainly more fortunate than he would be to-day.

However, all suspense must at last have an end. One day the mail brought to his address an official letter. He broke the seal, and within found a cadet's warrant, with an order to report for examination June 1, 1825.

III.

CADET.

ALTHOUGH from the time the distasteful proposition that he should learn a trade was made to him till the reception of his cadet's appointment young Mitchel managed his affairs to suit himself, his home connections were by no means broken. His mother, for whom he had the greatest love, had in the mean time gone to live with a married daughter at Piqua, Ohio, and during such intervals as her son was absent from his business he was with his mother and sister at Piqua. From here he left for West Point. He had saved a little money, and with a trifle more of assistance from his relatives enough was got together to bear the expense of the journey. A horse was borrowed, on which he set out for Sandusky, on Lake Erie, a distance of some one hundred and forty miles. It was a lonely ride at that early day. The only road was a mark made on the forest trees by chipping off a piece of the bark along the route, and called a "blaze." On reaching Upper Sandusky he hired an Indian boy to go with him to Sandusky and then take back the horse he had borrowed. "Had I not got to Upper Sandusky as soon as I did," he wrote, "I should have had to wait in Portland for one week. As it was, I only had to wait one night."

The next morning he took passage on a lake

boat for Buffalo. There he embarked on a canal boat for Albany. From Albany he proceeded down the Hudson River to West Point, where he arrived on the 22d of June, at eleven o'clock at night, "and put up," he says, "at a house of entertainment for strangers." The next day he reported for examination, and entered his name, Ormsby MacKnight Mitchel, aged fifteen years and eleven months.

Young Mitchel's experience on arriving at West Point, and his entrance to the United States Military Academy, has been clipped from boyish letters to his mother. They do not speak highly of the accommodations and table fare provided for cadets in the early days of the Academy.

After having reported myself for duty at the superintendent's office (E. T. Thayer), I then reported to the adjutant of the corps, who assigned me to a room containing four new cadets like myself. The room was very small, and was, indeed, very much crowded by four. The persons then in it were not very willing to receive a fifth person. I consequently met with rather a cold reception. I tried to render myself as agreeable as possible, and soon raked up an acquaintance with my new roommates. After conversing a few minutes with each I came to the conclusion that I was as good as any of them as far as related to mathematical genius, although I was dressed rather shabby, and you can judge of the correctness of my opinion since the first January winds (examinations) blew three of the four safe home again.

The first meal I ate as a cadet was on Wednesday. We had soup for dinner. I took one mouthful and that satisfied me. I saw some who were eating molasses (and you know I was extremely fond of our molasses), so I called for the pitcher of molasses, thinking what a fine dinner I would make on bread and molasses, but the first taste was sufficient. 'T was the most filthy kind of Orleans molasses.

There was some black-looking stuff, contained in a tin pan, which was honored with the name of pudding; but I had already received my dose, so I thought it not expedient to risk any further by tasting the pudding. I munched away on a crust of bread until the word "rise" was given, got up, and, as the saying is, "retired in utter disgust." Well, this was the luckiest thing for me that ever happened, and I will tell you why. You recollect that I had not looked at arithmetic for some months before I left home. I was consequently rather rusty in this grand science. Now on the next day came the drum-beat for dinner. I had had a *quantum sufficit* the day before. I stayed at my room while the battalion was gone to dinner, and was sitting musing on my sad condition, and did not know what on earth to do, when an old cadet—a son of the great Fulton—stepped in by accident. I was totally unacquainted with him, and had never seen him before. I pressed him to take a seat, and we commenced a conversation. He at length asked me if I felt prepared to pass my examination. I frankly told him that I did not. He told me that I would be examined in two days, and that I had better look over the subject, and there would then be no danger of my not passing. He said he would get me a book and show me what to learn. He did so. I sat down and studied constantly until I was called up.

On the 28th I was examined, in the forenoon, and was kept in mortifying suspense until about eight o'clock at night, when the new cadets were ordered to form in front of the barracks, and the names of those who were admitted were called out, and they were ordered to advance four paces. Oh, what a moment this was! As still as the hour of death. There was about fifty called in alphabetical order. At last my name was called. Oh, I cannot describe my happy feelings! There was about twenty out of the number rejected. This morning, about eight o'clock, we were marched into camp (Adams), called for the new president. I have formed some acquaintance with the cadets, and I think without exception they are the most gentlemanly set I ever saw.

Among other names called on that evening, so important to young Mitchel, were two destined afterwards to become prominent in an effort to break the power of the government that had called upon them to step four paces to the front that they might receive an education which would fit them for its defenders. These were Robert E. Lee and Joseph E. Johnston. Another, afterwards one of the most famous of Confederate leaders, Albert Sidney Johnston, then a first-class man, possibly stood looking on; while still another, who was emerging from the grub "plebe" into the butterfly third-class man, Jefferson Davis, was doubtless conjuring up methods by which he might render the existence of the new cadets drawn up in line most trying.

In Mitchel's student life may be traced what might be expected of him. Had he been the same age as most of those who stood above him in his class, and had he been better prepared on entering, perhaps he might have competed for the first honors. When he entered he was not quite sixteen years old, while his successful competitors were, some of them, nineteen or twenty. A prominent journalist of Cincinnati has given the keynote to Mitchel's career in speaking of how he was regarded while a cadet.

Mitchel was noted at West Point for his quickness and ingenuity. My father, who was formerly professor of philosophy there, used to say, "Little Mitchel is very ingenious." He was more than that. He was a real genius. A great many people are spoken of as men of genius, but I never saw more than half a dozen in my life, and Ormsby Mitchel was one of them.¹

The period passed at West Point was among the

¹ Memoirs of E. D. Mansfield.

pleasantest of Mitchel's life. Suddenly relieved of the irksome duties of a clerk, and the necessity for earning his own living, with nothing to interfere with his disposition to live, for a few years at least, a student's life, his lot was certainly very pleasing. Then there was something in the surroundings calculated to influence a certain poetic dreaminess, which, singularly enough, was found among the restless traits of his character. There is no more beautiful scenery in America, probably not in the world, than about West Point. The high hills on either bank of the Hudson, the level plateau around whose rocky shores the river bends, furnishing a view of its surface northward, for miles, dotted with sails and steamers, all combine to render West Point a beautiful spot. In summer, upon the quiet air one constantly hears sounds of music from the Academy band, or the metallic ring of arms, or the distant boom of a gun in target practice, while above the broad level plain, against the sky, floats the national flag. Under this flag Mitchel was cared for and educated, at that susceptible period when men are most readily influenced. Here his ideas of his duty to the state were formed, and here he imbibed a patriotism that grew stronger with every year he lived.

Mitchel's class (1829) has often been spoken of as "that celebrated class." Several of its members became distinguished, and a large proportion of those who reached middle life became prominent, and occupied positions of considerable trust. When the standing of the class was announced on the 30th of June, 1829, the name of Charles Mason headed the class. Robert E. Lee stood second. Thirteenth came the name of Joseph E. Johnston, while fifteenth in a

class of forty-six was that of Ormsby MacKnight Mitchel.

Upon graduating, Mitchel was assigned to the Second artillery as brevet second lieutenant, there being at the time no vacancies in the regiment. He was selected as assistant professor in mathematics at the Academy, and thus gained two years more of comparative leisure, in which to pursue his studies.

IV.

TRAITS.

BETWEEN the boy of thirteen, setting out to seek his fortune with a teamster in Ohio, and the young assistant professor at West Point, there has come a great change. Four years of study, of discipline, of association with young men who have been gathered from town and country alike, have given him enlarged ideas; his manners have been gradually furbished with his accoutrements, and his brain strengthened and polished in his classes. And now before following him further it may be well to glance at his characteristics, with a view to discovering what promise there is in him.

The post at West Point was one of the pleasantest in the army. The families of professors, officers, and others residing there and thereabouts formed an attractive society. There was boating and driving in summer, and skating and sleighing and general merry-making in winter. Mitchel was naturally socially disposed, and entered into such recreations with zest. Yet after partaking of all these pleasures, and giving the required time to his section of cadets, the day furnished hours for other purposes. He commenced the study of the law, in order to have a profession to fall back upon in case he should not care to follow that of a soldier.

While thus occupied he kept a diary. It may be

well to take a glance here and there in this record of daily thoughts and incidents, kept in an old blank book intended for taking notes on lectures while he was a cadet, not with a view to extracting ideas of great worth, or of finding entries of literary merit, but to gain some inkling of the idiosyncrasies, talents, faults, foibles, mingling in confusion, yet working together to the formation of a character. A thousand wild fancies were at that time floating about him. At one time he was dreaming; at another, pushing forward in some ambitious move; now full of fire, and now pining for some one on whom to lavish the tenderness of an affectionate nature. In the very opening of the diary, on April 25, 1830, he is dreaming.

A gloomy afternoon, and my thoughts almost as gloomy as the weather. I wonder if there be not a connection existing between our thoughts and surrounding objects. Sometimes I have imagined my spirits rise and fall with the sunshine and the cloud. Be that as it may, I perceive myself at rather a low ebb this evening. My mind seems to turn in restlessness from side to side, and yet finds no spot on which it can rest with the least composure or satisfaction. It finds nothing to soothe, nothing to cast a subduing influence over the jarring chords of thought, and reduce them to harmony and sweetness. I think if I could gaze for one moment upon some kindly face that beamed with goodness, that looked candid and artless, this would produce the desired effect.

My present mode of life ill suits my disposition. It may be well for one to spend a large proportion of his time alone. We are then obliged to think, and if our thoughts are under proper control; this may be of undoubted advantage. But to live entirely alone, to occupy a solitary room, in which nothing greets the eye except inanimate objects, where all is silent, and one starts, as Sel-

kirk beautifully represents the depth of loneliness, "at the sound of my voice," — there is nothing good in this: the mind is apt to indulge itself in melancholy feelings; a sort of cheerlessness pervades every object that surrounds, and the feelings are soon wrought to a pitch that becomes painful. And yet there is a keen enjoyment even in an excitement of this sort, and we are rather disposed to indulge than throw off that train of thought which has led us to such a singular stretch of feeling. A little of such sensations may not be injurious, but I should esteem my situation unhappy should it necessarily lead me to such reflection.

Afternoon. Have been reading law and am in better spirits. The weather is bad, and the rain is dashing against my windows. I wonder if I shall ever practice law? Doubtful question: indeed, there is no one settled point in my future prospects. All doubtful, dim, and dreary. N'importe, "All's well that ends well." So I'll even wait for the finale.

In the spring of 1830 he laid plans for visiting Europe. He was to go in company with Lieutenant J. Bryce Smith: they had applied for leave and had laid out the details of the projected tour. The object seems to have been like all other plans formed at this time, vague. Mitchel states it thus: —

My time could be employed to great advantage in studying men and manners, and then the mind would be stored with many new and important ideas which never could arise but for this. I would take great delight in the acquisition of knowledge by this method. There always is something interesting to me in the face of a stranger. It excites a desire at once to become acquainted with the character and life of the possessor. Besides, instruction received in this way is always more lasting.

Should I be so fortunate as to obtain a furlough, I must necessarily trust to fortune's chances for the "one thing needful." No matter: it will necessarily furnish

employment for my ingenuity, — if I possess any. I am not aware of the existence of any friend who could furnish me the means necessary to meet my expenses, but still I go on with the greatest confidence. All things have thus far succeeded with scarcely an exertion on my part, and why not now? On applying for an appointment to the Military Academy I had quite as little prospect of success. I shall therefore hope for the best and exert myself to the utmost.

That year (1830) a revolution in France deposed Charles X. and made Louis Philippe King of the French. The following spring brought a feverish political condition to all Europe. Mitchel was at that age when he would be most likely to be infected with the spirit of exciting times.

5th April 1831.

A revolution has broken out in Italy. Republican principles spreading. Russia, Austria, and Prussia against Poland. The Grand Turk disposed to take advantage of his autocratic majesty and to break the Treaty of Constantinople. Louis Philippe rejected the Crown of Belgium. There must be another revolution in France. . . . I should glory in mingling with the whirlwind and the storm. I should like to witness the conflict of emperors and see the lightnings blaze from assembled millions.

7th April 1831.

More and awful news from Europe. Paris in a state of absolute fermentation. Mobs furious, ministry feeble, deputies loud, boisterous, and clamorous, fleurs-de-lis being torn from every building, priests attacked, churches demolished, books bonfired, loud talks of republican government, war, civil war, etc. Well, well, what boots all this? Only that my plans darken apace. Don't feel in so good spirits this afternoon. Have been talking half a day about Europe and its convulsions. The thing is nearly out as to my journey. What shall I do then? I know not. I have been studying law this year at any rate.

At the Thespian Society in Lebanon, Mitchel at eleven or twelve years old had taken an important part. At West Point, eight years after, he was desirous of launching out as an orator. How long he had to wait for an invitation, or whether, to a young man ambitious for oratorical honors, the matter of an invitation was of no great importance, does not appear. To one possessing a special talent, such obstacles do not usually prevent its display. Mitchel determined to speak in public, and he did.

It was in April of 1831 that he made his first appearance on the rostrum. His subject was Temperance, and his speech was written. It was to be delivered on an afternoon before the circle of professors, officers and their families, cadets, and others connected with the Academy or the post at West Point. When the day came on which the event was to occur, he spent the morning reading and writing and watching the weather, the clerk of which did not seem to realize that on that day an orator of twenty-one years was to appear for the first time in his life on the rostrum, and extremely anxious as to the number of his audience. Shortly before the hour at which he was expected to speak, and again immediately after the delivery of his oration, he wrote in his diary: —

Weather changeable: “Il fait du soleil à present, et en impende temps, il fait niege.” No dependence, and no matter. Am prepared for the worst, so “burst ye thunders.”

Afternoon. Rather comfortable looking. All preparations made, or making. I feel tolerably calm as yet, and hope I may remain so. But there is no telling. I shall be pleased if the house is full. If not, I must needs bear it. Mem. — To gaze at my audience before commencing. It

may give me time to breathe, and all that. Read Byron (Moore's Life and poetry), dined on fish, passed in my "report" to the governor, and now am waiting for three o'clock. If any person criticises my speech with judgment, will say it is too "antique" for modern days. As to style, it is too regular and harmonious, that is, swelling and sinking too much in time. Yet I think it is strong and nervous. I write these things to compare what I now think with what I may think hereafter.

Well, 'tis all over. I have stood before the public, and have addressed them in a speech of forty minutes, (no short period to fix the attention.) I was much more calm and deliberate than I expected to be. Bungled and forgot but little comparatively. Some things I would have wished better; but no matter. But few ladies present. At least but a very few. I know not how it took and care no great deal, so it is not positively damned, since I spent no time upon its construction, and only used it as a stepping-stone to my next,¹ to be delivered in June, on a grand subject. Then I will lay down my strength, and try my speed and bottom. I have two months to prepare. Professor D—— and Cadet S—— were the most marked in attention. This I noticed from the stand. The whole audience were indulgent in this particular.

Lieutenant Mitchel had obtained leave for the purpose of doing some engineering work on a railroad then building in Pennsylvania. One day he was ordered to New York to carry to the directors some information as to the plans, routes, and other matters pertaining to the road. Finding himself confronted by these men, any one of whom was probably double his age, Mitchel proceeded to convey

¹ The subject of the proposed speech was "A National Association for the Advancement of Knowledge." The burning of the records of the Military Academy prevent discovering whether it was delivered.

the information with no more trepidation than if he were addressing his section at West Point. In a letter to his brother, who had carried him on horseback from Kentucky when a child, he speaks of the comment of one of the directors, which had been repeated to him, upon his youthful appearance.

By the by it appears that I am destined to be called "boy" all my days. I shall certainly wear whiskers and mustachios in self-defense. In one of my letters to you I mentioned my appearance before the Board of Directors of our railroad company, for the purpose of explaining certain drawings, charts, etc., relating to our work, which I had been engaged in making. I have since understood that some of the wise heads were pleased to remark, "What a boy that is to send on such business to *men*!"

In gathering up the traits indicated in these few extracts we find a somewhat promiscuous bundle of characteristics for a young man with which to begin life. Firstly, there is a tendency to dream — not a very good sign; but this is offset by great self-reliance. Then there is an at least apparent visionary or impractical disposition, and an evident desire to be stirring and to mingle in exciting events. In the attempt at public speaking, and in his confident remarks to the railroad directors, there is something which, despite other less promising faculties, bids us watch for more than medium rank in that world which he is entering.

Mingled with these is that of gentler mould, and far stronger in him than any or all of these traits, which is reserved for mention in another chapter.

V.

LOVE.

THERE lived at Cornwall-on-the-Hudson, some six or eight miles from West Point, a young widow, Louisa Trask. She was the daughter of an old and respected citizen, Judge Clark, who had long made his home upon the hills that overlook the river. Louisa Clark's girlhood had been passed there in the midst of the beautiful scenery of "the highlands." At seventeen she was married to Lieutenant Trask of the army, and went with her husband to his post at Jefferson Barracks, near St. Louis, then on the frontier. More than a year after this marriage Lieutenant Trask, while on duty in charge of some recruits coming up the Mississippi River, was taken ill at Memphis, and died in a few days. The widow, then not nineteen years of age, and with a young babe, found herself obliged to return to her father at Cornwall. The journey at that time could only be made by many days' staging. Carrying her child over rough roads, through a wilderness, beset by all the trials and dangers of a long stage-coach journey, she at last returned to the house she had so recently left a bride.

It was a few years after all this happened that Mitchel, having emerged from his cadetship, was invested with all the privileges of a member of that society formed among those living at and about West

Point. He soon heard of the beauty and misfortunes of the young widow, and being at an age when such a story would work to greatest effect on a naturally sympathetic disposition, he had a great curiosity to see her. They met one day at the house of a mutual friend. Mitchel saw a graceful figure, of medium height, a complexion ruddy or rosy, hair and eyes jet black, — the eyes especially large and expressive, and a face which, though very young, was tinged with melancholy.

They met again at the house of Mrs. Trask's sister, Mrs. De Witt, who lived at West Point; and Mitchel, having the young widow for a partner at cards, suffered himself to gaze somewhat longer than was quite safe at a pair of dark eyes directly opposite him.

On pleasant afternoons, when he had finished his daily efforts to crowd mathematics into the heads of those luckless youngsters who compose the fourth section at the Academy, he was accustomed to get out his horse and enjoy the fresh air among the hills lying about West Point. It happened that there was a road running off in a northwesterly direction, winding in among the hills, Storm King, Crows-nest, Butter Hill, and coming out at Cornwall. This road furnished one of the most beautiful drives to be found about the Point; and Mitchel once on it saw no occasion to stop till he arrived at Cornwall.

After a while winter came on, and the snows fell deep, and the river froze over; but the road to Cornwall was still to be traversed in a sleigh, and a good skater could skate there easily on the river. When Mitchel found the ice smooth he would put on his skates for an afternoon's exercise, but it never seemed

to occur to him to go *down* the river: it was always up towards Cornwall.

These trips were very near coming to a tragic end one cold winter night. He had finished a visit to a certain little cottage-built house that was set in among the hills fronting the river, and started to skate back on the ice. While gliding along, his thoughts running as smoothly as his skates, he suddenly found himself over his head in ice water. He had skated into an air-hole. His rapid motion and the current took him to the further edge. Here he clung while the outgoing tide was sucking him under. He knew it would be only a few moments before his strength would give way, and he would be carried on under the ice. Gathering all his forces, he made a desperate effort, and succeeded in scrambling up on hard ice. Then commenced a race for dear life. He was soaked to the skin, and without incessant action would freeze to death. When he reached his quarters his clothes were frozen stiff.

Many of these incidents, and more, are recorded in the journal Mitchel kept during this period at West Point. There may be a few living whose heads are white as snow, who would take a melancholy pleasure in perusing the yellow pages of this diary. There they would see their own names familiarly written at a time when they were in the first freshness of youth. Yet when one remembers how the time-waves have for fifty years been steadily sweeping over all those who then formed a pleasant circle at West Point, how few are left, and how soon these will join their companions who have gone, there comes an impulse to close the book and lay it away. But the biographer, like the surgeon, must needs repress his sensi-

bilities, at least for the moment, that he may draw forth the story that lies within these records of a dead past.

There was one spring during which the entries in the diary indicate a particularly happy period. A few notes may at times tell more than well filled pages. There is mention of a visit from the young widow to her sister at West Point, and how she was induced to prolong it. One day it was "a row to Moss Cottage," another "a row on the river." Mitchel was fond of music, and had learned to play a guitar. He sang "Will Watch" and "I Love," and "Flow on thou Shining River," songs that had long ago faded from the musical world. There was "the ball," "the camp illuminated," and, lastly, "a walk to the dock when she went away." After that, a "solitary ramble." "There is something so soothing in the mountain and the wave. To sit beneath the cliffs of the one and gaze in solitude on the other has long been for me a delightful employment."

During all this time the current of feeling between the two young people was gently ebbing and flowing like the tide in the river beneath the surface of an unnoticeable stream bearing them onward. At last they found themselves in that enchanted valley, in which all lovers go without being aware of it. The money. Mitchel fell desperately in love, and it has been said of the young widow, by one who thought of her, that she was completely charmed by the young aspiring young officer. Whether it was the walks to Cornwall, or walks to old Fort Patience, or among the hills, or boating on the river, the diary does not state, but there is evidence on a very strong

almost illegible page, a third of which is torn away, that in the month of July, 1830, they left the placid stream on which they had been sailing, and suddenly found themselves in the rapids.

Mitchel had won the widow, but he had not won her family. They thought him too much addicted to books and to study, they said. At any rate, the match met with serious opposition. Mitchel was not one to easily stand having his plans balked at any time, and in a matter in which his whole happiness was embarked he found his philosophy tried to the fullest extent. When there is no good reason for opposition in such cases, relatives usually hit upon some trivial matter, which they magnify and distort until they make it appear an impenetrable barrier to wedded happiness. The trip that Mitchel proposed to make to Europe was made the groundwork on which to base an opposition. It was pointed out to the young widow as eminently absurd that she should engage herself to a young fellow from the frontier State of Ohio, who designed visiting Europe without means to take him, and where he would very likely, if he succeeded in getting there, become involved in some of the revolutions then brewing, — perhaps lose his head by the guillotine. Indeed, the prospect was not encouraging. The plans of a young man whose only reliance is his own resource and perseverance and ingenuity, must always be a source of wonder to those of more settled methods, and especially to those who have grown old in experience. It is therefore not surprising that Mrs. Trask's family should have hesitated to intrust her to one who must have seemed to them a mere visionary youngster.

Another spring came on, but a changed season from the foregoing one for the young people. The diary has become feverish. There are hints of obstacles, of enemies, of some dreaded impending trouble. There is a mingling of fear and confidence, each of which shows itself suddenly, and dies away as it came. Indeed, there are all those conflicting emotions only to be found together in the breast of an ardent young man of twenty-one, desperately in love, and in constant dread of losing his mate.

A crisis came at last. The trouble arose from the projected trip to Europe. It is singular that an event so little likely ever to take place should have produced such unhappy results. Mitchel offered to give up his tour, if Mrs. Trask desired it. "No," she said, "it shall never be said that you relinquished your trip at my entreaty."

But the pressure brought to bear upon her was too strong not to produce some effect. Mrs. Trask held the wishes of her friends in too high regard to ignore them entirely. She at last wrote her lover that she had decided so far to accede to the views of her family as to break their engagement in case he should go abroad; but that she did not wish this to influence him to abandon his trip.

With all a lover's sensitiveness he at once assumed this announcement to be a polite dismissal. "Well," he wrote, the morning after its reception, "the avalanche which has so long impended has fallen. I am confoundedly mangled and bruised, but not totally crushed." Taking up his pen, he wrote one whom he had been in the habit of addressing by endearing names a note, which began, "Respected Madam," and ended, "Your obedient servant." He informed

her that he had abandoned his trip, but since her letter he had resumed it. It is needless to point out the result to the intelligent reader who is not in love. In due course of time it came back to him with the simple indorsement, "Accepted. Louisa T——."

And this was the end: the result he had so long feared. His engagement was broken: he was hopelessly in love, and the world before him was a dreary wilderness.

Twenty-four hours were sufficient for the excitement attending the first shock to wear off. On the second evening his courage began to sink rapidly, and by the following day he was ready to go back over the ground he had traversed by way of that valley of humiliation through which the daughters of Eve have driven the sons of Adam from time immemorial.

But would even this avail? Such a question is only calculated to arouse new terror in the breast of a despondent lover. How many letters were begun and never finished, how many were written and never sent, does not matter. There is a natural course through which such affairs have to run, like a fever. To the cold surgical eye of the biographer, which must necessarily pass over a record closed to others, the course on this occasion appears to have been the usual one. Indeed, it was the most common of all love maladies.

The condition of the patient is thus noted from the diary: —

April 17th. Rose at half past five, and read Tacitus' *De Moribus Germanorum*, the first reading of any interest for a week. To-morrow I opine will bring something decisive unless *la dama* concludes to consult her friends, in

which case they will send me *au diable* without salt or vinegar to preserve me, and that with a hearty good will.

Then he tried reading Herodotus, and having got his mind fixed for a few moments on one of those remarkable statements of the father of history, he thought he was mending. But no one perusing his notes at the time could pronounce him anything but feverish. In truth, he was passing through a crisis, possibly the most important of his life. He was madly in love. A happy issue might make him; an unhappy issue might mar him. Ten days passed and yet no outcome.

April 20. Read a little this morning, — Life of Agricola. Time hangs like so much lead on my shoulders; whole hours drag in misery and impatience away. Then I expect letters which do not come, and I am thus disappointed. Well! it cannot be so forever, thank fortune; things must end some time.

This is the last sentence written in the diary. Here there is a sudden ominous break. Nothing but faded blank paper to the end of the book. Something has evidently happened; either a final wreck of all hope, or a reconciliation. Not even regard for a future puzzled biographer induced the writer to refrain from breaking off in this provoking manner at such an important point. Turning back over the pages, two or three short notes appear at intervals written cross-wise. What is this written across the most pathetic page, bearing date of April 13, 1832?

Here I am one year after the writing of this page with a wife seated at the other extremity of the table. And who do you suppose it is? Surely not she who would break an engagement, because forsooth her lover would not resign his schemes of travel. Surely not she who

could desire her lover to remain at home for fear her friends might censure her for receiving his visits. Surely not the person who could receive him who had flown to her "upon the wings of the wind" with the chilling question, "Why did you come?" Yes, this same, this very same person is now my wife. Oh! what is the boasted reason and judgment of man!

VI.

ENGINEER AND PROFESSOR.

IN the summer of 1831 there was a wedding party at Cornwall. Mitchel had been ordered to join his company, then stationed at Fort Marion, St. Augustine, Florida. Taking with them Mrs. Mitchel's child by her former marriage, now a boy of three or four years of age, they proceeded to the station with the delightful anticipation of wandering through orange groves and listening to the piping of the nightingale. Their anticipations were realized. The young couple had but little to do except to ride under the trees and pluck the ripe oranges and listen to the warbling of the birds. Mitchel's duties were nominal. Save an occasional day's duty as officer of the guard or officer of the day, an inspection or dress parade, his time was almost entirely unoccupied.

These duties were altogether too light to satisfy one who had already delivered temperance addresses and appeared as civil engineer before boards of directors. Neither himself nor his wife had any means upon which to begin the world in any other career. But Mitchel never seemed to take pleasure in those things which did not involve obstacles to be overcome, and it has been seen that it was his disposition not to calculate on the means by which he proposed to accomplish objects so much as upon his own resources and ingenuity. He served at Fort Marion

one year. On the 30th of September, 1832, he resigned his commission.

His plan was to seek the West. He had no definite intentions, but believed he had sufficient energy and ability to work his way. He could teach, and was at home with the implement of his ancestors, the theodolite. He chose the most promising town west of the Alleghanies, Cincinnati. It had then a population of about twenty-five thousand practical, hard-working people, ready to welcome any one who was willing to settle down and work. One or two of Mitchel's West Point chums had come from there and had returned. Others having friends there were kind enough to give him letters.

On a bleak November day the ex-lieutenant reached Cincinnati, a place in which he was destined to reside for nearly thirty years.

An entry in a note-book kept at the time gives a brief account of the first days spent in his new home.

Rained all day. Searched the city for a boarding-place and found none; was obliged to stop at Mr. Hackwelder's hotel. Monday, saw R—— and M——. Received but a cool reception. Shall cut them with much satisfaction. Visited Judge Burnet. Received with kindness and attention. The Judge offered me all the assistance in his power. Delivered letter to J. D. Jones, and on Wednesday received a call from Mr. Jones and wife. Wednesday, called on Mrs. Mansfield. Excellent woman. Seemed deeply interested for our welfare. Called on Dr. Drake. Sick and invisible. Saw Judge Burnet second time. Conversated on the subject of my immediate admission to the bar. Chances against it. Called on C. H——. Thinks my chances of admission but few.

Next follows an advertisement of a graduate of West Point, who is desirous of forming a class in

such branches of mathematics as are "particularly important to those who anticipate any connection with the mechanic arts."

Another entry follows, evidently written at the same time.

I have been deeply engaged for the last three years of my life in trying to discover the particular course out of thousands which should be adopted and pursued by myself. Difficulties assail me in the outset, and these have been growing and darkening in proportion to the distance which has been passed over in my adopted course, like the mists which envelop the mountain, and increase as the traveler ascends, until he with difficulty gropes his uncertain way. So have I toiled and struggled on until I am now almost enveloped in impenetrable difficulties. But let this be an encouragement, for if the traveler persevere, a few more struggles carry him above the clouds which impeded his way, and will present him a clear, broad, bright, and unbounded prospect as a reward for his toil. So with me; the very multiplicity of difficulties which now surround me tell me that the race is well-nigh won. A few more persevering, vigorous efforts and the difficulties shall be surmounted. I shall rise above their influence, and be rewarded with a full and clear prospect.

In due time Mitchel was admitted to the bar, and soon became the partner of E. D. Mansfield, afterward one of the most distinguished journalists of the West. Mr. Mansfield, like Mitchel, had graduated at West Point, though ten years before Mitchel's time. He thus speaks of the efforts of the firm in the profession of the law in his memoirs:—

In the year 1834 I had my office on Third Street, near Main. My partner in our professed law business was Ormsby MacKnight Mitchel. . . . We were really literary men, and our thoughts wandered off to other subjects. The scene in our office was often a remarkable one,

though observed by no eyes but our own. Mitchel was fond of the classics, and instinctively fond of eloquence. The scene I refer to was this: Mitchel sat in one corner reading Quintilian, a Latin author on oratory. He was enamored of the book, and would turn to me and read passages from it. I, on the other hand, sat at my desk, in another corner, writing my Political Grammar (now the Political Manual). Thus we were two students, each occupied with his own literary pursuits, and neither thinking of what both professed, the practice of the law. The consequence was what might have been expected. Mitchel resorted to teaching classes, and I became a public writer. We both found our vocations, though very different from what either had anticipated.

Let us pass over the next eight or nine years of Mitchel's life, with an occasional glance here and there, that we may keep the chain of events unbroken. Probably the most unpromising period of his whole career in Cincinnati was when he was endeavoring to practise law. Children were being born to him; it was necessary to provide for the wants of his wife and family; but there were no clients, and Mitchel did not possess the faculty of securing them, or the peculiar tastes requisite to making the most out of them after they were secured. His wife stood by him in these days of discouragement, never losing faith in him, and always encouraging and helping. Teaching and engineering together enabled him to get on. He had various other schemes at different times, but none ever seemed to produce results save these two branches.

The Cincinnati College, which had been founded in 1819 and had died out, was revived in 1835. In 1836 Mitchel was elected by the Board of Trustees professor of mathematics, civil engineering, me-

chanics, and machinery. "The salary," says the letter of appointment, "is \$1,500 (including a session of nine months), with the privilege of sharing equally with the college in the proceeds of whatever tickets you may dispose of at your own price to irregulars. The regular annual vacation will continue during the three summer months, but to facilitate your operations in civil engineering, the Board have granted you the option of remaining absent for four weeks longer, if desirable, in which event a corresponding deduction will, of course, be made in your salary. The Board have also appointed you teacher of the French language for the first session of the college, with the privilege of retaining the whole amount from the pupils of that branch as a compensation."

The engineering work referred to was on the Little Miami Railroad, then projected or building, of which Mitchel was chief engineer. It was a period when railroad enterprises were starting all over the country, and among the earlier roads that led from Cincinnati there was not one of which he did not make the surveys. As a railroad engineer he proved a marked success. His forte was always in work, laid out definitely before him, no matter with what inadequate means. There was a certain drive to him that overcame all obstacles. When a marsh or a river must be crossed he would accomplish his object in the quickest possible time, and by the most ingenious methods.

In 1837 occurred the memorable bank riots in Cincinnati. The young professor had been chosen to the command of a military company, called the Citizens Guard, and when the mob attacked the banks he was ordered by the mayor to turn out his com-

pany for their protection. He hurriedly got together twelve men. As each man was expected to fight his proportion of perhaps twelve thousand, or one to one thousand, the war was not successfully prosecuted. Mitchel marched his force into the midst of the mob, and, mounting a box, endeavored to effect by words what was evidently impracticable by forcible means. Nor was he deterred by the missiles that meteor-like darted about his head. At last he was ordered to retreat to the mayor's office. In passing up one of the streets that led from the river, the mob pressed somewhat closer than was deemed desirable, and he ordered his men to halt, and turn and fire. One unlucky rioter, or spectator, was shot in the leg, which afterwards occasioned a suit in the courts for damages.

Arrived at the mayor's office, the little squad was advised to take off their uniforms and don citizens dress, that they might escape to their homes in safety. The captain, who never could learn the value of the maxim, "Discretion is the better part of valor," declined to undergo the coat-changing process, and, drawing his sword, walked out in full regimentals. He was a small man, not over five feet six inches in height, and at no time weighed over one hundred and thirty pounds. But he had a firm-set face and a determined look which carried weight. As he strode through the mob that had been waiting to tear him to pieces, a way was opened for him through which he passed safely home.

He was informed that during the night his house would be attacked by the mob. He was possessed of a couple of old flint-lock muskets, and it was agreed between him and his wife that she should

serve the guns while he fired. Fortunately the threats were not carried out.

During the five years subsequent to Professor Mitchel's appointment to a chair in the Cincinnati College, he was laying the foundation for the main work of his life. His duties in the lecture-room included lectures on astronomy. Constant practice made him familiar with methods for expounding astronomical problems to his pupils, and his lectures were soon found to be so interesting that on special occasions members of the families of the students were glad to be admitted to listen to them. This led to an invitation to lecture in a more commodious place; a considerable interest was awakened, and that course which led to the establishment of the Cincinnati Observatory soon followed.

The only proposition that had been made to establish an observatory in the United States was made to Congress by a President of the United States, John Quincy Adams, to be built and equipped and operated with means drawn from the treasury of the government. None of the rich and cultivated communities of the eastern States had made any move whatever in this direction. Mr. Adams' proposition was ridiculed all over the country. What had been thus condemned, Mitchel proposed to the citizens of Cincinnati, a young, almost frontier town, — it had then a population of less than fifty thousand, — whose people might be expected to take more interest in a new manufactory, steamboat line, or railroad, than could be aroused for an observatory in half a century.

In view of these facts, — the practical character of the people, their struggle for necessities and com-

forts, to the exclusion of more remote objects, their natural disposition to view an observatory as one thing that they certainly did not need, especially in their youthful condition, — we are bound to regard this enterprise, undertaken by Professor Mitchel, as a hopeless task.

We have noticed in him a tendency to schemes, which would not be entertained by the wise and prudent, but have not thus far seen any of his plans put to practice. Now we have reached a point where the most visionary of them is conceived and to be undertaken. Its success could not in any way depend upon chance. If carried through at all it could only be by lifting the members of the community, from which the means must come, from their lower practical prudent sense, and leading them into the more spiritual realms of the astronomer.

And now the attention of the reader is directed to a fragmentary account of the building of the Cincinnati Observatory, written by Professor Mitchel himself, and given entire, without interruption, so long as the record is complete. Then the history must be continued and finished from other sources.

VII.

THE CINCINNATI OBSERVATORY.¹

A BEGINNING.

DURING the winter of 1841-42 I was invited to deliver a lecture, as one of a popular course given by the Cincinnati Society for the Diffusion of Useful Knowledge. My subject was "The Stability of the Solar System." The lecture was listened to by a large and attentive audience; considerable curiosity and interest seemed to be aroused; the daily papers spoke favorably of the subject of the lecture, and requested the delivery of a short course upon the most interesting parts of astronomy. Some six weeks after this period, and when the subject had wellnigh passed from my mind, I ascended the rostrum in the lecture hall of the society at the moment when the president was announcing to the audience that the lecture of that evening would close the regular course. One of the officers of the

¹ There is no one living who remembers the writing of this account, or the causes of it. It was found long after Professor Mitchel's death with other MSS., none of which had been overhauled for many years. It is probable, however, that it was in this wise: After the completion of the enterprise of which it is partly the history, Professor Mitchel used to tell a number of entertaining stories connected with the work, and especially of his trip to Europe as agent for the Cincinnati Astronomical Society. Being urged to put the account into shape, he did so, but laid the work aside without finishing it. Whether it was intended for private circulation or publication is not known. Only portions of the original are here given, since the descriptions of places it contained would now be uninteresting, and foreign to the narrative. At the time of the occurrence of the events described Professor Mitchel was thirty-two years of age. The account was written partly then and partly soon after.

society, while he was yet speaking, requested my consent to announce a few lectures from me on astronomy as a continuation of the series given under the auspices of the society. I consented to make the experiment by announcing one lecture for the following Monday evening, and added in my announcement to the audience, that if they were pleased, we would then try the experiment who should tire first, they in listening or I in lecturing.

In revolving in my mind the various means by which I might interest my hearers, the thought struck me that if I could present to the eye some of the magnificent pictures in the heavens revealed by the powerful telescopes of Europe, and thus illustrate each lecture with appropriate telescopic views, the subject might possibly be rendered sufficiently interesting to draw out an audience. The mechanical means of preparing these representations were now to be invented. My books furnished me with many beautiful plates exhibiting the figure of the objects which I wished to present to my audience, and a small telescope in my possession gave me the opportunity of verifying in some instances the accuracy of these delineations.

After many abortive efforts a plan finally suggested itself which in the end more than realized my fondest expectations. I succeeded in forming within a box a powerfully and equably illuminated surface. In front of this surface, and in the same box, I interposed an opaque surface which had wrought upon it and through it the figure of the object I designed to represent. The light from the illuminated surface behind only appeared as it shone through the cuttings or piercings which formed the figure to be exhibited. By the interposition of colored screens my light was tempered to any color or shade which might be desired. Highly delighted with the success of my machinery, I prepared rapidly and easily the illustrations which were to accompany and elucidate my first lecture. I selected as my first subject Laplace's *Cosmogony*, his celebrated nebular hypothesis by means of which he accounts for the formation of the universe.

The subject was novel and of itself deeply interesting,

while the series of illustrations, consisting of nebulae of various forms, nebulous stars, double stars, comets, etc., gave me the opportunity of bringing home to the mind, through the medium of the eye, the wonderful series of evidences in support of this most wonderful theory.

On the first evening my audience was respectable, on the second evening my house was filled, and on the third it was overflowing. During the entire course every opportunity was taken to lay before my audience the exceeding beauty and wonderful magnificence of the heavens as seen through the great telescopes abroad, as I had conceived in the outset some rude notion of a plan by means of which we might be placed in possession of an instrument in all respects comparable with the finest in Europe. From the history of the celebrated Dorpat Equatorial, manufactured by Fraunhofer of Munich, and sold at cost to the Emperor of Russia, I learned that its cost did not much exceed five thousand dollars. This amount did not appear to me to be beyond the possibility of being reached, and the more familiar I became with the thought the smaller it seemed, until finally I fixed in my mind the sum of seven thousand five hundred dollars as the amount which should form the lowest limit, and this sum to be appropriated for the purchase of instruments alone, leaving to future effort the additional sums which might be needed in the accomplishment of the enterprise.

My lectures were continued until about the last of April, when I drew the course to a close, feeling that a sufficient impression had been made to warrant an attempt to put in execution a plan which I had digested and deliberately adopted, with the full purpose of carrying it out to completion. The last lecture of the course was received with uncommon favor, and I received a written request, signed by many of my audience, to repeat it in the great Wesley chapel, a church which it is said will hold some two or three thousand persons.

I consented to comply with the request; and having selected some of my finest telescopic views, I determined to announce my plan at the close of the lecture and com-

mence at once the execution of it. The evening came round, and the chapel was crowded with an audience precisely such as I would have chosen could the selection have been placed in my hands. At the close of the lecture I informed the audience that for a few moments I desired their attention to a matter of deep interest to me, and one which I was confident, from what I had just seen and heard, would receive their cordial approbation, if not their hearty coöperation. I remarked that up to this time our own country had taken no part in the great movement in astronomical science, which during the present century has been attended with such wonderful discoveries. Ours was a belief founded most emphatically on faith and not on sight. While the nations of Europe were vying with each other in the career of discovery, the United States, not less deeply interested mentally and commercially than any nation on earth, was lying indifferent, while from the Old World the finger of scorn was pointed at our profound republican ignorance. We had literally done nothing. While Russia with its hordes of barbarians boasted the finest observatory in the world, our own country with all its freedom and intelligence had been recently reported by the Astronomer Royal of England not to possess a single observatory within all its vast extent. It had been even said that the efforts in Congress had forever sealed the fate of astronomical science in this country. The government could never become the patron of astronomy, since no representative would risk in its defence his reputation for sanity. The scientific were too few and too poor to attempt any great enterprise; while the wealthy were too indolent and too indifferent to lend their aid extensively to a matter of which they knew but little.

What, then, can be done? The answer is easy and simple. I will go to the people, and by the anvil of the blacksmith, by the workbench of the carpenter, and thus onward to the rich parlor of the wealthy, I will plead the cause of science. I have resolved to raise seven thousand five hundred dollars; and my plan is this: Divide the entire sum into three hundred shares of stock, each share being

valued at twenty-five dollars. Every person who purchases one share of stock becomes a member of the society, and shall forever enjoy the privilege of examining these beautiful and magnificent objects through one of the finest glasses in the world. No one becomes bound until the three hundred shares are taken. My resolution is fixed, and I shall visit personally one thousand of our citizens and be refused by each and every one before I will yield and resign the effort. I am determined to show the autocrat of all the Russias that an obscure individual in this wilderness city in a republican country can raise here more money by voluntary gift in behalf of science than his majesty can raise in the same way throughout his whole dominions.

Encouraged by what I have seen, to-morrow I begin my visits, and all I ask is courtesy and kindness at your hands.

Many among those who were present that evening felt a disposition to become one of three hundred, but few, very few, believed it possible to raise so great a sum for such a purpose. Many pronounced the whole scheme as wild and impracticable, while others declared that seven thousand five hundred dollars could not be raised in as many years.

The execution of the plan was commenced, not so much with the expectation of raising a given sum in a given time, as with the fixed determination of redeeming the pledge publicly given to visit one thousand citizens before the scheme should be relinquished. Looking at the effort in this light, there could be no disappointment, since every individual upon whom I might call would be one of the thousand, if not one of the three hundred stockholders.

Between three and four hours were devoted during the first afternoon and evening, and about one hour of the following morning before the regular college duties commenced. To the utter astonishment of every one this short time was sufficient to take up the sum of *one thousand dollars*. With such a commencement, there could be little uncertainty as to the final result. All classes in our community were visited indiscriminately, and individuals from every circle in society became stockholders and members of the society.

A very few took two shares, one individual three, and one other five shares, while the great mass of stockholders subscribed for but one share each. The number who declined subscribing from various causes were in about the ratio of four to one, so that it was found necessary to call upon about twelve hundred citizens to procure three hundred stockholders. A few minutes were spent with each individual, during which time it was ascertained pretty certainly which way his decision would turn, and instead of attempting to carry the point with those who were entirely indifferent, they were left after a few moments' explanation, and the search was continued until a person somewhat interested could be found. In the latter case the result was almost invariably the procurement of a stockholder.

At the close of the third week from the commencement of the effort to take up the stock it was announced that three hundred shares were subscribed. A meeting of the stockholders was held on the evening of May 23, 1842, at which time a constitution was drawn up and adopted. On the following evening under the constitution the society met, and the officers, consisting of a president, secretary, treasurer, and astronomer with twelve directors, were elected to serve for one year. The Hon. Jacob Burnet, one of the oldest and most distinguished citizens of the West, was elected president. William Goodman was elected treasurer, and M. G. Williams, secretary. The following gentlemen were elected directors of the society, viz.: E. Poor, J. H. Perkins, E. D. Mansfield, H. Storr, Jno. P. Foote, J. T. Brooke, J. Jonas, G. P. Torrence, J. P. Harrison, M. Greenwood, and M. T. Williams.

A Board of Control, consisting of all the officers of the society, including the future director of the observatory, were intrusted with the management of the affairs of the society. An excellent spirit pervaded the meeting, and at its close some forty names were added to the stock list.

On the ——— a meeting of the Board of Control was convened, and the director was requested to present some

plan of future operation. The rapidity with which the enterprise had been carried forward had quite disarranged my early plans. Presuming that six months would be required to obtain the subscription of three hundred shares, the terms of payment did not anticipate any call on the subscribers before the 1st of October, about six months from the date of the first subscription. It was intended to occupy the remaining part of the year 1842, and the spring of 1843, in collecting and in extending the subscriptions, while it was hoped that the summer of 1843 might be passed in Europe in procuring instruments, examining observatories, forming acquaintances with scientific men, and in obtaining that practical knowledge of the conduct of an observatory which might enable me not only to erect the buildings and mount the instruments, but commence their scientific applications to the uses for which they were designed.

Such were the statements made to the Board. After deliberating on the subject, the unanimous opinion was expressed that it would be disastrous to the interests of the society to stop for a moment in the prosecution of the enterprise so successfully commenced. The inquiry was made whether my private affairs would permit me to spend the summer of 1842 in Europe, instead of that of 1843. A difficulty in the execution of this plan presented itself in the fact that no subscriptions could be called for in less than five months. This could only be obviated by the voluntary payment of the subscribers. The Board of Control, having resolved that the enterprise should be prosecuted with the least possible delay, called a meeting of the society, presented their plans, and received their sanction. The sum of one thousand dollars was paid in in the course of a few days, and the following letter was addressed to me by the Board of Control through the president of the society :

CINCINNATI, *June 15, 1842.*

ORMSBY M. MITCHEL.

Sir : In conformity with a resolution of the Board of Control of the Cincinnati Astronomical Society, you are

hereby authorized and requested to visit Europe as soon as your business will permit, for the purpose of procuring a telescope and such other instruments as the society may require.

You are aware that it is the desire of the association to obtain the most perfect instruments which can be procured, and that they rely on your judgment and skill to make the selection, or to give the directions for their construction, as may be the case.

It is believed that the sum now subscribed by the members, amounting to seven thousand and five hundred dollars, will be paid in October, and that in any arrangement you may see proper to make, you may safely calculate on that result.

It is desirable that you keep the society, through their Board of Control, advised of your movements and progress, and particularly of any contracts and pecuniary arrangements you may find it necessary to make in discharge of the trust conferred upon you by the society. It is also expected that you will not extend your engagements beyond the means at the disposal of the Board.

J. BURNET, *President.*

M. G. WILLIAMS, *Secretary.*

Having thus received my instructions from the society, letters were procured which might facilitate my movements in Washington, through which place it was my design to pass, with the hope of receiving from the heads of departments such assistance as they might feel disposed to extend to an enterprise in which, it was believed, the government of the United States could not fail to take considerable interest.

No difficulty of importance had thus far presented itself, except that growing out of the offer of one of our mechanics to construct the instrument required by the society, in our own city. As this department of mechanical ingenuity had not been cultivated in the United States, the society regarded it as too hazardous an expenditure of their funds to form a contract which in the end might disappoint their

After a full discussion of the subject it was considered wiser to order instruments from the most skilful artists and mechanics of Europe, trusting that with these aids, American skill and science might one day rival the productions of foreign artists.¹

¹ A hope that has more than been fulfilled.

VIII.

A STAGE-COACH JOURNEY.

A SUDDEN plunge into new scenes, the responsibilities incident to new relations, and the whirl of rapid change and unceasing variety, cannot fail to excite even the most phlegmatic of mankind. Called suddenly and somewhat unexpectedly to leave my home and family, it was not without a gush of feeling, which I shall not attempt to describe, that I sprang from my own door into that of the stage-coach, and buried myself and my emotions among a crowd of passengers which filled the inside, while not a few were perched, in the full blaze of a hot June sun, upon the exterior. Each rising sun that should greet me for weeks to come was to fling its early beams full into my face, as if to beckon me onward, and cheer me in the long journey which now lay before me. I had turned my back upon the West, not disrespectfully, but with the hope of returning to it again better prepared to play the part which seemed to be assigned me on the stage of life. It seldom happens that the stage-coach always leaves the city of Cincinnati as crowded as the one into which I squeezed myself with no trifling effort at compression. It happened that the day of my departure was made memorable not only by that incident, but by the additional circumstance that upon this same day a political convention was to be held some thirty miles from the city, and on the mail route. Several of the insides and all the outsides were bound for this anticipated gathering of the people.

I was no stranger to those by whom I was surrounded, and soon found relief for my excited feelings in the con-

versation of Colonel A., an old acquaintance, but who was ignorant of the causes which were sending me from our city, in consequence of having himself but recently returned home after an absence of several weeks. The colonel, an exceedingly amiable and polite gentleman, commenced the conversation by the question as to my destination, supposing that, like himself, I had been seized with the idea that the affairs of the nation demanded my supervision, and that consequently I was speeding my way with all haste to the great convention at L——.

When informed that I should not stop short of London, would probably visit France and Germany, and that I might possibly extend my journey to the imperial capital of the Czar of Russia, my friend looked at me in profound astonishment. Knowing me to be rather a staid and quiet citizen, and in no way given to joking, he was quite amazed at my words, and not a little perplexed how to understand them. I relieved his astonishment by giving him a brief sketch of the recent movement in our city, which, in so short a space and during his absence, had resulted in making it necessary for me to visit many important points in Europe. I can only say that the effect of my statement was such as to convert my friend into an ardent supporter of the enterprise in which I was engaged.

A rapid journey over a good macadamized road soon brought us to the town of L——, where I parted from most of my city friends,—they soon to return to their friends and accustomed vocations, while every hour for many a day and week was to separate me farther and still farther from my wonted scenes.

The night closed in upon us between the town of Xenia and the Yellow Springs; and the conversation, which had circulated briskly after the excitement of a comfortable supper, gradually lulled to a perfect calm, and at length, by mutual tacit consent, each was left to his own reflections as precursors to whatever of sound sleep he might catch during a first night's coach travelling. I cannot vouch for the train of thought which passed through the minds of

my fellow-travellers. I found my mind, fortunately, in a kind of calm, such as is sometimes produced by the meeting of two opposite and swiftly rolling currents of water. So the current of thought, touching all I had left behind, was stilled by the opposing current of anticipation which came rushing in from the dim shores of the unknown future.

The morning dawned upon us within a few miles of the capital of the State of Ohio, and as the first rays of the morning sun lighted the spires of this beautiful city we drew up full in front of the Niel House. When the hour of our departure had arrived I mounted on the outside, above the driver, in the mail coach, and was soon rattling over the national road for Wheeling. We breakfasted at Cumberland on the morning of the third day from Columbus, and here, on leaving, found our numbers increased by the presence of a quiet, unobtrusive, middle-aged gentleman, who, in English phrase, "booked" himself for Baltimore. As the party inside had already formed such an acquaintance with each other as to feel much like a travelling family, the stranger was received with politeness and welcomed to our social circle. The contemplated speedy completion of the Baltimore and Ohio Railroad as far as the city of Cumberland, was naturally suggested by the locality as a topic of conversation. The remarks made upon this subject by the stranger gave evidence of intelligence not only with reference to this particular road, but on the subject of engineering generally. I became interested, and soon learned that the gentleman was Dr. Patterson, a resident of Philadelphia, and, upon inquiry, I found that he was intimate with a number of scientific gentlemen in that city, to whom I was anxious to pay a flying visit as I should pass through Philadelphia on my way to the city of New York. A stage-coach is a capital place to form an acquaintance; and on arriving at the relay house near Baltimore, on exchanging cards, I was gratified to find in my new acquaintance the superintendent of the United States Mint, — a most polite and amiable gentleman, as the sequel will show. The train of cars going into Bal-

imore met the Washington city train coming out, at the relay house, and in three minutes, the exchange of passengers and their luggage having been made, we found ourselves flying at twenty miles per hour towards the city of Washington.

IX.

WASHINGTON.

EARLY on the morning after my arrival I found myself at Gadsby's, inquiring of the member of Congress from the District. Having learned his residence, and waiting for the rules of fashionable etiquette, I called on Hon. Mr. Pendleton, and in a few minutes ascertained the object of my call and of the reception in Washington. I wished to secure suggestions from the heads of departments, as might assist me in the objects which were leading me to the city.

I was the bearer of letters to the Secretary of the Treasury, and to the Secretary of the United States, from personal friends in Cincinnati; also a letter from the Hon. Judge of the Cincinnati Astronomical Society. Colonel Pendleton politely offered to accompany me on these dignitaries, to effect by his personal calls upon these dignitaries, to effect by speedy access.

We paid our first visit to the Secretary. He was already at an early hour in his private study. I had seen Mr. Webster once before. Several changes had taken place, and extraordinary changes in his appearance had in the mean time taken place. His strongly marked features of his countenance wore an air of peculiar sternness, plainness of changes through which he had passed I accompanied with fierce conflicts and might have had, literally, dug their traces upon his face. The Ashburton treaty was at this very time in the air, and was, perhaps, at this very moment

with some of its vexed and perplexing questions. The secretary sat in his chair and received us not with courtesy, and yet not with indifference, but with a look which spoke as plainly as language could have uttered it, "Well, gentlemen, your business; I have no time to bandy compliments."

Interpreting the look and acting upon it, I addressed him much after the following fashion: We have raised in our city by voluntary contribution a sum sufficient to lay the foundation of a great observatory. It will be the first in our country. I am the agent of the contributors, and am on my way to Europe to acquire the knowledge necessary to build, furnish, and conduct such an observatory. As the objects to be accomplished by this enterprise are national, some interested have thought that the government might so far assist the association as to make its agent the bearer of despatches to some foreign court; and if this be impossible, the association requests that I may be furnished with such letters to our ministers abroad as may facilitate my operations while in Europe.

Mr. Webster's reply was more condensed and laconic. "To make you bearer of despatches, and thus pay in part your expenses, is impossible. Congress has deprived me of the means of paying for any such services. I will write you a letter, sir, if I find time." Here closed the interview.

From the State Department we proceeded to the Treasury buildings, and were speedily ushered into the presence of the Secretary of the Treasury. Mr. Forward was courteous enough to express a deep interest in an enterprise so novel, regretted that want of acquaintances abroad would place it out of his power to serve me in that particular, but hoped that I would command him in anything touching any objects I might have to accomplish in Washington.

Thus far it will be seen I had accomplished nothing. If my success with the President should prove as equivocal, I would leave my own country with very little to hope for from the exertions of the heads of departments in my behalf. From the Treasury Department we made our way through the beautiful park which surrounds the Presi-

dent's house, and, passing through a suite of apartments, we were soon in the private office of his Excellency.

As briefly as possible I opened to Mr. Tyler the object of my visit, and referring to the vast expenditures which had been made in behalf of astronomical science in almost every civilized nation of the world, to the high interests which our own nation, eminently commercial, had in the subject, expressed a hope that, if consistent, our enterprise might be regarded with a favorable eye by the government, and that its agent might receive at his hands some public commission, which might in part defray the expenses incident to such a tour as he was about to take. The President did not seem to be particularly struck with my eloquence, or with the importance of the enterprise; but an idea suggested by the subject seemed to take entire possession of his mind, and he expatiated largely upon the visionary scheme entertained by a former President of erecting a national observatory, which he pleasantly termed the "light-house of the skies;" not that this expression was original, but was the one which was insultingly bestowed upon the enterprise by the political opponents of the person who warmly recommended this highly important national measure. The President laughed most heartily at the exceeding humor which seemed to be somewhere enveloped in this view of the matter, and more especially at the idea of having been called upon by the ex-President, and urged to recommend this object as one of special interest to Congress.

As I had been somewhat prominent in the recent movements in behalf of an observatory at Cincinnati, for which I had just been soliciting the patronage of his Excellency, the exceeding mirthfulness on his part, although it plainly showed that the exalted station which he occupied had not deprived him of the use of his risible muscles, yet upon the whole I could not avoid feeling that the President was laughing at me over the shoulder and behind the back of Mr. Adams. This, however, I am confident was an unintentional insult, partly from the fact that his Excellency very promptly offered to exert himself in my behalf, and prom-

ised to present the subject to his Cabinet council that very day, requesting me to be particular to call and see him at the same hour on the next, but more especially because that five months after this interview the President, in conjunction with his Secretary of the Treasury, found it possible so to construe an act of Congress, making appropriations for buildings for the reception of the instruments belonging to the Navy Department, as to find authority to send an agent to Europe with a letter of instructions, almost an exact copy of the one which I then bore from the Cincinnati Astronomical Society, and which was shown to the Secretary of State and others in Washington. The instruments ordered, under the construction of this act, are of the finest quality and of the largest dimensions, while the buildings destined to receive them are to harmonize in all respects with the beauty and perfection of the instruments. I therefore conclude that one who in so short a space of time could devote himself with so much energy to the accomplishment of this great national object, could scarcely have intended to have then treated it with derision.

With the express invitation to call on the next day I took my leave of his Excellency, deeply impressed with his enlarged views of science, and especially with the peculiarly droll and facetious manner he had of paying a compliment.

From the President's house, still under the guidance of my friend Colonel Pendleton, we proceeded to the Capitol. I knew that Mr. John Quincy Adams, while engaged in the investigation of this same subject, had made an interesting report to Congress, and had corresponded with Mr. Airy, the Astronomer Royal at Greenwich, England. Anxious to make the acquaintance, and to obtain the advice, of so distinguished an individual, I sought an introduction and was met with cordiality and kindness. I received an invitation to spend the evening at his boarding-house, at which time he promised to furnish me with his report and such letters as I might desire. This was an unexpected attention, and one which I need not say was highly appreciated. After a short interview in the hall of the House of Representa-

tives we separated, with the expectation of meeting again in the evening.

The remainder of the afternoon was spent in forming the acquaintance of the Ohio delegation in Congress, a matter which I was beginning to think might prove of some value to me, in case all other resources should fail.

At an early hour in the evening, agreeable to appointment, I paid my respects to Mr. Adams. I was received with a quiet dignity of manner which marks the character of this extraordinary man. He was pleased to make specific inquiries touching the origin of our enterprise, and as I developed rapidly the history of our movements, our future plans and prospects, if not really warmed into an excited interest in our behalf, he had the art of manifesting the identical feelings and actions which should have been prompted by the existence of such an interest. I had heard much of the profound research and extraordinary knowledge which distinguished Mr. Adams in every department of political philosophy, history, and general literature; but I was not aware that the sciences had claimed any considerable share of his attention. I knew that he had been earnestly engaged in attempting to effect the erection of a national observatory, but I readily found so many reasons for such action, independent of any special interest he might have in astronomy, that I was not a little surprised to find myself in the company of one who seemed, to a good degree, even technically acquainted with this most abstruse and difficult science. He adverted to the reception which his report had met with from Congress and from the country, and expressed his satisfaction that an enterprise which he had vainly attempted to accomplish nationally was likely to be accomplished by individual effort.

I expressed some apprehensions with reference to the possibility of gaining access to the European observatories, at least on such a footing as would permit me to examine in detail the mode of their operations. Mr. Adams remarked that he had corresponded with Mr. Airy, and although not personally acquainted, he felt justified in giving

to me a letter of introduction, commending the cause which I represented to the special attention of that eminent individual.

Gil Blas has somewhere remarked that there is an air of dignity and superiority which always surrounds great men, in the eyes of the humble, especially when they are known to be great. The same veritable author very properly adds that this air of superiority is greatly enhanced in the estimation of an obscure individual, if by chance he meets with some special mark of favor or attention from an exalted personage. Whether this truly philosophic reasoning applies in my own particular case or not, I leave the sagacious reader to decide. I had recently left the presence of the President; I was now in the company of one who was not invested with the insignia of lofty power, and yet the feelings of profound respect with which I looked up to the one were only equalled by those of indifference with which I regarded the other. The evening passed rapidly by being deeply interested in the conversation of this truly remarkable man, and I was not a little surprised to find I had been too long trespassing upon time which was constantly occupied in the duties incident to his official station. On taking my leave he presented me with a copy of his report, and promised to prepare for me a letter to Mr. Airy, which I might obtain by calling the next day at the Hall of Representatives. Thus ended the operations of my first day in Washington. I sought my own room at Gadsby's, and after a short review of the events of the day past commenced my plans for the next.

X.

A PRESIDENT'S PROMISE.

THE morning opened upon me with no very bright anticipations as to the results which I might be able to accomplish during the day. A chilling influence commenced creeping over me when I remembered that here at home, in the capital of my own country and among my own countrymen, and, yet farther, among those to whom I was the bearer of letters from personal friends, so little interest had been manifested in an enterprise which, it would seem, ought at least to command the respect of those in whose hands are found the welfare of the nation. I could not but look forward to the future with somewhat gloomy anticipations. What could I expect better among foreigners than I had met with from my own countrymen? And should such be my reception abroad, I might return as I went, without accomplishing one half my wishes or those of the society.

Having written my notes, read the papers, and breakfasted, I inquired at the bar¹ for letters, and was presented with a package which bore the marks of having been directed in the Department of State. The reflection passed rapidly through my mind that if Mr. Webster was not particularly amiable, at least he was exceedingly prompt and business-like. I broke the envelope, and to my surprise found it contained a *sealed* letter directed to Mr. Everett, our minister in London. What could this mean? Had the Secretary of State suddenly changed his views and made me bearer of *despatches* to the court of St. James? I looked in vain for explanation. Not a scrape

¹ In American hotels at that time the bar and the office were together, and always called the bar.

of a pen could be found; nothing but the equivocal sealed letter, bearing upon its exterior the superscription Dan. Webster. I was somewhat perplexed, but having solved, in my own opinion, the mystery, I determined to visit Mr. Forward, the Secretary of the Treasury, who, being a Western man, I felt the distance by which I was removed from him less than that which separated me from the other distinguished personages on whom I had called. Not finding his secretaryship in his office, and perceiving that it was the hour at which I had been requested to call and see the President, I made my way to his Excellency's mansion.

I was met by a mulatto, who inquired if I had business with the President, and without waiting for a reply added, "If you have, sir, you cannot see him; he does not receive company at this hour." I took out my watch and bade the negro tell his master that the person whom he had invited to meet him at eleven o'clock was waiting below. The only reply was that the President did not receive calls at such an hour, while he held his post between me and the door with most dogged indifference. After one or two unsuccessful attempts to induce him to take my card to the President, I turned upon my heel and was walking off, when his Excellency's gentleman usher called to me and said that if I would give him my name he would take it up, to which I paid no attention.

I left the White House, and returned to Mr. Forward's office, where, after an attendance in the antechamber sufficiently long to give me ample time for reflection, I was informed that the Secretary had gone into his office, and desired that I might enter.

"Well," said I, "Mr. Forward, I think I had better abandon the business on which we conversed yesterday, and return quietly home; but first will you be kind enough to inform me, provided you will not be revealing cabinet secrets, whether his Excellency, the President, said anything at the council yesterday with reference to making me a bearer of despatches to the court of St. James?" While I uttered this sentence I quietly thrust into his hand Mr. Webster's sealed letter, adding that I had ventured to

come to him for information, inasmuch as I had been denied access to the President. Mr. Forward knew nothing of the President's promise of the preceding day, and I adopted this plan of arriving at the facts in the case. He looked awhile at the letter and then at me, and finally remarked that there must be some mistake; that he was present at the council, but that Mr. Tyler had not said one word on the subject. "Exactly," said I, "that is just what I anticipated. The President promised me that he would exert himself in behalf of the society which I represent at the Cabinet meeting of yesterday, requesting me at the same time to call and see him at eleven to-day. This I attempted to do, but found it impossible even to get the servant to take my name to his master. Mr. Webster, it appears, has found time to write one letter, and that is sealed, so that after remarking that it was impossible to make me bearer of despatches, I am nevertheless, from the appearance of that paper, to be intrusted with a sealed communication, if not sealed instructions, from the Secretary of State to our Minister in London."

Mr. Forward remarked that there must be some mistake, and insisted that I should be seated. I told him that it was scarcely worth while; that I had made up my mind that if it required the influence of official rank to insure my success abroad I had given up all ideas of success, and the sooner I returned home the better.

Mr. Forward again insisted that I should be seated, and inquired into the particulars of my visit to Mr. Webster of the preceding day, and of my late effort to gain access to the President. After giving him a detail of the circumstances, he insisted upon being permitted to send to Mr. Webster's office for an explanation of the sealed letter, which he said had doubtless been sealed ignorantly by a clerk, into whose hands Mr. Webster had passed it to be enveloped and directed to my address. This I consented to, and then Mr. Forward offered to accompany me to the President's, which I promptly declined, remarking that I had visited him the day before under the wing of a member of Congress, and if to-day I must seek the protection

of a secretary, I declined the honor of any further interviews.

After ten minutes' discussion of this point, I found that I could not continue to reject the reiterated offer of Mr. Forward without giving offence, and as soon as the messenger returned from Mr. Webster's office, bringing the intelligence that he was out, we picked up our hats and walked through the lawn to the President's house. But here again I was destined to meet with discomfiture. Mr. Tyler was closeted with the Secretary of State, and under such circumstances even the Secretary of the Treasury thought it a breach of etiquette to send in his name.

The only part of this affair which I regretted was that I had given some trouble to a really amiable and kind-hearted gentleman; one who has since found that the honors and emoluments of the high station which he then occupied were but poor compensations for the harassing solicitude by which he was then and since constantly annoyed.

It was now twelve o'clock, and as I had determined to leave Washington at four, I proceeded at once to the Capitol, and through the assistance of the representative from Hamilton County, soon succeeded in assembling the Ohio delegation in one of the committee rooms.

I related to them succinctly the history of my recent efforts, and requested that if they thought the object worthy of their attention, they would unite in a letter to our ministers in London and Paris. Having referred those who were not personally acquainted with me to my friends, Colonel Pendleton and Governor Morrow, I left the delegation together. The necessary letters were prepared before separation, which were signed by those present, and I received them before leaving the city.

Thus far I had been so entirely occupied with business that I had scarcely allowed myself time to interchange the ordinary greetings with a number of old army friends and classmates whom I had met on the streets. On returning to my hotel from the Capitol I was pleased to meet several with whom I had been long associated in early life,

and had two entire hours of delightful conversation before it was announced that the departure of the Baltimore train was at hand. I left the great metropolis of the United States without regret, and was soon flying with the speed of an arrow towards the City of Monuments.

XI.

BY THE WAY.

THE customs which regulate the intercourse among travellers vary with almost every section of the world. On the western rivers, those who journey by steamboat feel that one part of their duty is to form the acquaintance of those by whom they are surrounded, and, by a mutual interchange of civilities, contribute as far as may be to the comfort and convenience of the voyage. This is true of travelling in the West and South generally, whether by stage, steamboat, or railway. In the eastern States, where the journeys are shorter, and where a more artificial state of society prevails, there is much less of social intercourse among those whom the accident of travel may chance to throw in each other's society. The distance from Washington to Baltimore, forty miles, is accomplished in about two hours; and although this would not seem a very long while for one to be left exclusively to his own reflections, I did not feel by any means disposed to remain taciturn, even for so short a period. I therefore surveyed deliberately some twenty or thirty faces, by which I was surrounded, for the purpose of selecting the least forbidding, on the owner of which I meditated a direct attack. My eye finally rested upon the countenance of a gentleman of perhaps thirty-five years, which wore a cast of thoughtfulness, and yet a hidden restlessness of the eye indicated to the close observer that he was on the lookout for something which might interest his attention for the time being. He was not so young as to be foolish, nor so old as to be insulted. He was not enough dressed to be a dandy, nor yet so meanly clad as to look on one with suspicion.

I took a vacant seat immediately opposite the gentleman,

So goes the day on shipboard: what with eating, what with reading, what with playing shuffle-board, and what with chatting, the long day will wear away, and the still calm evening with its soft balmy breath steals upon us.

The sun sinks as it did to-night, unclouded, broad, full and dazzling, flinging a beam of light athwart the still surface of the deep, straight and beautiful as a column of living flame, while the western wave glows with molten splendor.

Eleven o'clock at night.

I have just come in from pacing the deck. The passengers have generally turned in, while some two or three still linger above to enjoy the beauty of the scene. A sweet south wind is gently wafting us over the smooth surface of the ocean, from whose sleeping bosom myriads of stars are reflected backward, as if the earth were removed and we were suspended in the centre of a crystal sphere gemmed with radiant diamonds. Jupiter and Saturn are slowly emerging from the eastern wave, while Venus, closely attendant upon the God of Day, refulgent with beauty, is gently sinking below the western waters. There is not a cloud visible, naught to be seen but the sparkling waves below and the sparkling heavens above. The breeze seems laden with the aroma of southern climes, untainted and uncontaminated by the reeking impurities of earth. 'Tis a sweet scene, and yet how many enjoy it? A large majority of the few who might enjoy it are quietly snoozing in their close and narrow boxes, breathing an atmosphere infected with all imaginable odors, unconscious of the balmy air which woos them.

SATURDAY, *July 2, 1842.*

On yesterday we swept merrily along, borne forward by an eight-knot breeze. Turned in at ten o'clock of course, expecting to make some forty miles during the night; rose at five this morning, went upon deck, and learned to my inexpressible horror that we had been becalmed nearly the entire night. Those of the passengers who are seasick experience some mitigation of their woes in this transition

from roughness to quiet, for what they lose in distance is made up in freedom from the pangs of a mutinous stomach. But, alas ! I have no such pleasure in store. Never having been in any degree seasick, I begin to suffer an unconquerable impatience when delayed by these miserable calms. The fact is, the captain is making the southern passage, and if report be not an uncommon liar, we are destined to encounter streaks of quiet from this to the head of Cape Clear. Horrible situation ! Dying of anxiety to commence active operations on shore, and here we lie, in the full blaze of a July sun, while the heavens are brass, and not a breath of wind even to flap the listless sail. Give me a gale, if it be favorable, rather than this intolerable calm.

Broad, low, long-sweeping swells are coming in from the quarter whence came the last breeze, and the vessel, even to its minute rigging, is mirrored on their placid surfaces. Passengers are hanging listlessly over the bulwarks, gazing into the deep below. The first mate, with his eye fixed upon maintop-gallant sail, is whistling for the wind with most persevering energy. The captain is leaning, with his chin buried in both hands, upon the capstan head, excogitating the probable influence of a long voyage on his owners' minds ; while the man-of-wars men are engaged in plaiting straw to make them hats to go on shore. From present appearances I think they need not hurry themselves, as they are likely to have abundant time to finish them unless things should take a sudden and most extraordinary change. So we go, down to-day, up to-morrow, rising and falling as the waves and with the wind ; and thus it should be.

MONDAY, *July 4*, 1842.

This is the anniversary of American independence, and though our ship is American her passengers are so divided that no effort will be made to raise even one shout for the star-spangled banner. Who could shout in such a calm ? unless it were to wake old Boreas, who must have fallen into a magnetic slumber. I have been remarking the effect of this delay upon our various passengers. The

American Liverpool merchant, a bachelor, professes to be an optimist of the first water. If it blows a gale, all right, we move the faster; if a calm overtakes us, so much the better, no danger of losing spars or rigging in a squall; if the fiery sun scorches the deck and fries out the tar and pitch from its pine surfaces, "Well," he exclaims, "there is the greater chance of a thunderstorm and of a change for the better."

One of the Germans, a tall, straight, active young man of twenty-eight or thirty, marches the deck with a hurried step, every now and then stamping and uttering some exclamation in a lingo unknown. The Mexican prince thrusts both hands in his pockets, and having lighted his everlasting cigar, seats himself composedly in the fore-topsail halyard rack, and watches his pets in the shape of two fleet-blooded horses, which he is taking from the United States to London, to take in the cockneys with their fast trotting.

The Yankees play backgammon from morning till night, while the dyspeptic Englishman laments in measured strains the miserable plight in which we find ourselves.

Last evening we were entertained by a most brilliant display of fireworks on a scale of magnificence seldom surpassed. About nine o'clock a most beautiful aurora began to exhibit itself in the north. The horizon being unbroken we enjoyed the exhibition in its full perfection. There rested upon the ocean a flat segment of circular cloud, the upper part of which was illuminated, and from behind its surface there shot forth brilliant streamers of light mounting upwards to the very zenith, occasionally uniting and forming a crown of dazzling splendor. Rapid changes were constantly diversifying the entertainment while these "merry dancers" amused themselves and us for more than an hour. At length the cloud faded away, and the display gradually vanished from the heavens.

Eleven o'clock at night.

About twelve o'clock to-day, whether from the whistling of the mate, the stamping of the German, or the puffing of the Mexican, a breeze sprang up and has been gradually

stiffening ever since. What a change it works in one's feelings! Then all was listless indifference; now all is active excitement, and, with a cloudless sky, we are sweeping through the waters with uncommon speed. Every sail is full, and the good ship bends to the sweeping wind.

An hour ago I was leaning over the bulwark at the stern, gazing intently upon the long train of phosphorescent light left by the ship in her wake behind. I thought myself entirely alone, but on looking up caught the keen eye of that nondescript Mexican prince. He inquired the name of the beautiful star just setting, and, finding him to be in an inquisitive mood, I encouraged his questions until our conversation had taken a wide sweep among the celestial hosts. He is well bred, well read, intelligent, and yet there is something in his character which remains a kind of mystery. *Nous verrons!*

WEDNESDAY, July 6, 1842.

Another syncope to my hopes. The breeze, which for thirty-six hours has encouraged us with the prospect of a speedy termination of our voyage, died away last night, and here we are enjoying the delights of an unruffled ocean.

What a queer medley is life! I find myself meeting, day after day, upon terms of intimacy with a number of persons of whose existence a short time since I had not the slightest knowledge. Circumstances now bind us together, but should we ever reach our destined port our bonds burst, and we fly to the four quarters of the world. We generally manage to kill an hour or two at dinner, which is served up in the most sumptuous manner; not less than four courses each day are presented to tempt the abstemious beyond the bounds of moderation.

On my right is seated my friend, the dyspeptic, an exceedingly queer man. Kind, gentlemanly, and polite, well-read and intelligent, he weighs every word of every sentence which he utters with so much scrupulosity that you are under constant apprehension that he will break down in the middle of a sentence. On my left is seated he of

the wife, most inveterately addicted to talking. The lady seldom or never makes her appearance at the table. Opposite are the two clock peddlers, young men of small education and limited experience. On their right, the brothers, English merchants of New York, amiable gentlemen enough, but somewhat opinionated. Next comes in order the bachelor Liverpool merchant, already described as an optimist. Opposite this last is seated our only Irishman, merry and light-hearted as the youngest, though he is now advanced in the "sear and yellow leaf." So much for those who speak English. The other passengers I will leave to sketch some other idle hour.

Long conversation with the Prince. His character and creed are rapidly developing, and if I mistake not he is an epicurean of the rankest school. He denies all difference between right and wrong, and his own pleasure is his only end and aim. He professes to believe that remorse for the most horrid crimes is a mere weakness, and unbecoming a noble mind. Such in substance is the moral or rather immoral creed of this enigmatical individual, and from his appearance I should suppose he had long lived up to his creed. His portrait is admirably drawn in James's novel, *Morley Ernstein*, in the character of Count Lieberg, who distinguishes himself by his villany and devil-reasoning to convince Morley that conscientious scruples touching the means employed in accomplishing his ends are evidences of a weak mind.

An uncommon chilliness had filled the atmosphere during the morning, which, for the latitude in which we were, was so unusual that the captain pronounced without hesitation that we were within a short distance of ice. As the fog came and went, a lookout was stationed on the fore-castle, and having full confidence in the predictions of the skipper, all was excitement among the passengers. About eleven o'clock in the forenoon the fog cleared away and revealed one of the most beautiful sights I ever beheld.

About a mile southeast of our vessel the diamond peaks of a huge iceberg were glittering in the beams of the sun. The sides were diversified with ravine and plain, lofty

precipices and beetling crags, from whose heights streams of foam were dashing and spouting and flinging up their spray in rainbow hues. The summit must have risen two hundred or three hundred feet above the level of the ocean, while the sides, in some instances, rose perpendicularly from the water's edge a hundred feet high, and in other cases sloped gently upward as if intended to bear the vegetation which belongs to real earth. As there was no danger from this dreaded stranger, we contemplated his sublime appearance with feelings of unmingled pleasure.

THURSDAY, 14th July, 1842.

Rose at daylight and mounted the quarter-deck. Found Old Ocean chafing under a twelve-knot northwester. Billows rolling and the wild wind whistling merrily through our rigging. The skipper was standing on the deck wrapped in his sea-coat, and swaying to and fro to keep his centre of gravity within the limits of equilibrium. We were running under "topsails," the top-gallants having been hauled in on account of the fierceness of the blast. Our vessel was dashing furiously through the angry waves, ever and anon riding on the broad back of some wandering billow, and then sinking deep into the yawning chasm which succeeded. Thus have we been sweeping onward all day, confined principally to the cabin by the storm of rain which is raging without and by the crest of some aspiring wave which now and then leaps over our lofty deck.

FRIDAY MORNING, 22d July, 1842.

Five weeks to-day since I bade *ma chère* adieu. Ere this I expected to have been half over Europe, but the fates otherwise decree. Within one hundred and thirty miles of Liverpool and nothing but calms and head winds. If I am ever caught at sea again in a sailing-vessel when a steamer can be had for love or money, call me fool. True, we are comfortable enough if we can all trust in anything prospective. But there's the rub, and my time is oozing out, and nothing done or doing. Handcuffed; bound faster than even in a prison, and no chance for

escape; and to tantalize one still more, on the one hand is seen the coast of Ireland, and on the other the coast of Wales, and a steamer here, and a fishing-boat there, all moving forward, and we becalmed or bedevilled with head winds. Ah, give me *terra firma*, where, if all else fail, one can use his legs!

SUNDAY MORNING, 24th August, 1842.

Was waked this morning about half-past three o'clock by the skipper, who flung me the papers and announced that the pilot was on board, and that a tug steamer was rapidly approaching our ship to take her in tow. This was most agreeable intelligence. We reached Cape Clear Light on Monday evening, and have been the entire week baffled by head winds and calms, losing by the tide in the night what we had made during the daytime, until the patience of all is well-nigh exhausted. The steamer came alongside early this morning, and we are no longer subject to the capricious movements of wind and tide. It was a real pleasure to set foot on the steamer's deck. One could realize that the shore could not be far distant while in the full sound of the ringing of bells and knocking of steam machinery.

Well, the English coast is rapidly rising above the horizon. The passengers have doffed their sea dress, and are scarcely the same persons in their land gear. The man-of-war's men have mounted their blue jackets and straw hats, and here is an end of this interminable sea voyage.

XIII.

LONDON.

OTHERS have written their "first impressions."¹ I will spare the reader, as far as possible, but it would be rank treason to the interest which attaches itself to this tour, to neglect the record of the first sight that greeted my individual eye on the coast of the Old World. The passengers stood in groups on the deck, each watching with eager curiosity for the first objects of life which might reveal themselves to the sight. The beach, which skirts the ocean for some miles near the city, began to be visible without the aid of the glass. I stood with this instrument in my hand, and a light haze which had rendered objects indistinct having cleared away, I brought up the glass, and followed up the outline of the beach. At length it rested upon a mass which gave indubitable signs of life, and resembled an ant-hill in commotion, or better still, a convention of Lunarians as seen through Professor Genthusen's great refractor. I watched the crowd with eager interest, wondering what extraordinary cause could have assembled such a multitude on the beach on Sunday morning.

My wonder was soon dispelled by the sudden separation of the crowd from the centre outward, when there were distinctly revealed three equestrians with uncommonly long legs, mounted each upon a donkey of uncommonly low stature. They drew up abreast at the starting-point of the race-course, and then dashed forward at full speed, amidst the furious gesticulations and no doubt the deafening shouts of the crowd which had assembled to witness this ludicrous exhibition.

¹ At the time this was written, a trip to Europe was a rarity. Travellers writing of these tours usually gave first impressions.

Had Columbus, attired in his magnificent costume, and surrounded by his officers in full uniform, been greeted on nearing the New World, to effect a landing, by such a spectacle, doubtless even his gravity, profound as it was, would have forsaken him.

Having reached her anchorage, the *Garriek* prepared to disgorge the heterogeneous crowd which for near thirty days had been confined within the narrow limits of her bulwarks.

We were soon on board a small steamer, which carried us to a landing-place of one of the magnificent docks of Liverpool. We landed, and the bonds which had so long encircled us were rent asunder. The separation was touching, and yet such was the excitement produced by again setting foot on solid earth that few felt it, beyond the moment. Under the guidance of our two English brothers, five of our party made our way to the Grecian hotel. The bells were just ringing out a merry peal, and the streets were filled with persons in Sunday garb hastening to church. It was a fair and beautiful day; and although the city of Liverpool, on close inspection, is sufficiently dingy and dirty, yet so great was the contrast between my present and past conditions, that it seemed to me I had never beheld a more enchanting place.

On Monday morning, precisely as the finger of the clock pointed to the hour, the signal at the railway station was given, and away we flew towards London. About ten o'clock in the evening we reached the city of Birmingham, where we stopped for the night. Between twelve and one o'clock of Tuesday, the smoke which enshrouds the great modern Babylon began to be visible, and such was the speed at which we were hurried along that we could scarce utter the exclamation, "Yonder is London!" until we found ourselves in the midst of her magnificence and misery, her palaces and prisons.

The transition from the banks of the Ohio to those of the Thames, from the familiar scenes of Cincinnati to the gloomy magnificence and sombre grandeur of London, had been sufficiently rapid to make one feel as though enchant-

ment had wrought the wonderful change. Dazzled, bewildered, excited, the mind becomes the chaotic, tumultuous scene by which it is surrounded. At least such were my own sensations, when, after depositing my luggage at the Easton Hotel, I found myself rattling through this mighty Babylon, in search of a starting-point for the once important, but now by comparison insignificant, operations in which I was personally interested.

In the company of a travelling companion, in less than thirty minutes after reaching the city I found myself threading my way through the streets of London, in search of the residence of a gentleman to whom I carried a letter. A short drive brought us to Fenchurch Street, and I was about to make my first London acquaintance. As natural scenery is said to stamp the impress of its character upon those who live in its midst, so it seems to me that citizens of this sombre metropolis must harmonize with the gloomy magnificence by which they were ever surrounded. It required the cordial manners of the excellent Mr. V——n to dispel these preconceived notions. Having learned the object of my visit to Europe, every facility was promptly offered me. I accepted a note of introduction to the under secretary of the Royal Society, and having received information with reference to a suitable lodging-place, I took my leave, highly gratified with my first London call.

From the residence of my new friend I drove to Somerset House in the Strand. Somerset House was once the palace of the Protector Somerset, and occasionally used by Elizabeth and Anne of Denmark for the sittings of their respective courts. Here are the apartments of many of the learned societies of England: The London Royal Society, The School of Design, The Society of Antiquarians, The Royal Geological and Astronomical Societies, — each and every one of which is but another name for the science or art they cultivate, — here concentrate their treasures, to be scattered by every breeze, and borne to every clime to bless and elevate mankind.

I soon found myself in the apartments of the Royal Society, and though a little overawed by the majesty of a

place rendered sacred by having been the theatre of action of such mighty intellects as those of Wren and Newton and Bradley and Flamstead, and a host of others down to modern days, the frank and polite reception from Mr. R——, the under secretary, soon dispelled any feelings but those engendered by the associations which crowded in through every avenue of thought and memory. One important object was to secure an entrance into the Royal Observatory at Greenwich, upon such a footing as might permit me to penetrate the secret workings of a system which evolves such great results. Having unfolded in a few words to Mr. R—— the object of my visit to Europe, and my desire to examine the Royal Observatory, I was informed by him that Mr. Airy, the Astronomer Royal, to whom I had a letter from the ex-President Adams, was then absent on the Continent, whither he had gone to observe the eclipse of the sun, which occurred in July. He advised me, however, to deliver the letter which I bore, directed to Mr. Airy, to his confidential assistant, the Rev. Robert Main, who at that moment had the entire control of the observatory. Mr. R—— presented me with a number of valuable scientific tracts, published by the Royal Society, and having consumed as much of his time as I dared in a first visit, I retired with an assurance that Mr. R—— would afford me every assistance in his power, and with the request to call upon him in the most free and unreserved manner for anything in his power to perform.

My next visit was to Mr. Edward Everett, the American Minister. A short excursion of about three miles along the most direct route from my lodgings to Grosvenor Place, part of it through Hyde Park, brought me to Mr. Everett's residence. The minister was at home, and I was ushered into his office. I introduced myself as an American just arrived in London, and presented him with the mysterious sealed letter already alluded to as furnished me by Mr. Webster, Secretary of State, as also a letter signed by the Ohio Congressional delegation. Mr. Everett examined my letters with deep attention, expressed a great interest in the enterprise which had

brought me to Europe, and at once bade me call upon him without reserve for any assistance which it might be in his power to render. I received notes of introduction from the minister to several persons of distinction, among others one to Lord Brougham, and one to Dr. Roger, the Secretary of the London Royal Society.

The urbanity and courtesy of Mr. Everett are only equalled by his learning and genius, which have given to him a reputation and respect wherever he is known.

In the shop of Messrs. Troughton & Simms, distinguished astronomical instrument makers, I was received with great courtesy by Mr. Simms. My letters to some extent unfolded the nature of my business, and I soon found myself in earnest conversation touching the various instruments necessary in a thoroughly furnished observatory. When Mr. Simms came to understand the magnitude of my plans, and the superior size and perfection of the instruments which were wanted, he turned to me and bade me remark an individual engaged at the moment in earnest conversation with another in a distant part of the shop. The gentleman in question in the outward man exhibited nothing peculiarly striking in form or figure. The face was sufficiently English, though the figure was rather American. He was engaged in earnest and excited conversation. The eye flashed, the heavy eyebrow rose and sunk, while the expanded forehead, rendered more voluminous by a fall of the hair from the upper region of the head, bore striking testimony to the workings within. The vigor with which the conversation was prosecuted, the emphatic manner, the frequency and even violence of the gesticulation, all struck me and excited no small curiosity to know who it was to whom my attention had been directed.

"There," said Mr. Simms, "is the very man of all others whose acquaintance you should form. He can tell you everything and help you to everything, and will do it too, with the greatest pleasure. That is Mr. Sheepshanks, and when he finishes talking I will introduce you."

I looked upon this distinguished astronomer with feelings of deep interest. There was an air of frank, open, independent action, accompanied with an energy and emphasis which strongly reminded me of my own countrymen of the "far West." Mr. Simms and I continued our conversation quietly, expecting every moment when the astronomer would bring to a close the harangue which so deeply interested him. How many minutes rolled by while we were waiting I know not, but to me perhaps the minutes seemed hours, when finally the gentleman who had been receiving the instructions, or listening to the opinions of Mr. Sheepshanks, withdrew, and I was in turn presented as a stranger from America, in search of instruments of superior size for the Cincinnati Observatory.

Having given me a hearty welcome to England, "Let me see," said he,—"the Cincinnati Observatory! I don't think I have heard of any such. Is it of recent origin? I know you have some fine observers, but if I am not mistaken they are like ourselves in some instances, sadly off for instruments."

"No wonder," I replied, "you have not heard of our observatory, since it has as yet no real existence, and lives but in the hopes of some who perhaps are regarded as dreamers. We have formed in our backwoods city, on the banks of the Ohio, an astronomical society now numbering more than three hundred members, and we have devoted"—

"Stop!" said Mr. Sheepshanks; "did I understand you? an astronomical society! three hundred members! on the banks of the Ohio! Three hundred astronomers in one city in the New World!"—

"Stop," said I, in my turn; "all but the astronomers! Our society numbers three hundred members, but, sir, they are from every rank, grade, and profession in life. From the hard-working mechanic to the retired merchant, from the butcher in his stall to the professor in his gown, all have joined in the accomplishment of a scientific enterprise, all have contributed and nearly in equal sums, and all hope to enjoy an equal advantage in the event of success. I am

told the noble Duke of Northumberland has just presented Cambridge with a magnificent equatorial, and the Emperor of Russia has endowed Pultowa in like manner. In America we have no dukes, nor nobles, nor kings, nor emperors. The people constitute the imperial power, and the people have become the patrons of science. Ninety days ago and the Cincinnati Observatory lived but in the brain of a single individual. Now that individual stands before you with funds to purchase what your friend Mr. Simms says is not to be found in London, an instrument equal to that which, in the hands of Struve, at Dorpat, has done such signal service to astronomy. I come to see, to examine, to study, to learn, and I humbly beg the aid of your great experience, in accomplishing the objects of my mission."

Here I halted, a little out of breath, while the astronomer and the manufacturer looked at me with no small astonishment. "Indeed," said Mr. Sheepshanks, "you shall have my poor aid with all my heart. But tell me, is it possible that the people, the very people are your patrons? Why, I am corresponding with one of your countrymen in Washington, and he tells me they hoot at every one who mentions the idea of a National Observatory in the halls of Congress. Faith! the people are better than their representatives. This is a most curious, wonderful affair, is n't it, Simms? a democratic astronomical society. Well, sir, it is a great idea, and I hope you may realize all your loftiest wishes. What can I do for you? How can I help you? I am here at London, or rather at Greenwich, 'observing,' for a few days. Oh, Airy is gone. That's a pity. He's first chop in all these matters. He'll be back perhaps before you leave. Consult him by all means, as to your plan of building, instruments, etc. By-the-by, Mr. Simms, where is that letter I left with you? It is on this very subject." (Mr. Simms got the letter.) "Here," said the astronomer, "take that, return it when you finish to Simms; you will find it contains some rough outlines. What can I do for you?"

Such is a specimen of the rapid overflowings of heart

of a man who, if he does not bear the most euphonious name, sustains a character for unostentatious kindness which renders its utterance music to a stranger's ear. I mentioned my entire deficiency in instrumental astronomy, and of the details of an observatory; my anxiety to procure catalogues of books, blank forms of record and reduction; a knowledge of the practical use of the instruments, their adjustments and manipulation; in fine, a thorough preparation, which might fit me to build the observatory, adjust the instruments, and conduct a full series of practical observations.

I remarked that I had a letter to Mr. Airy from the ex-President, Mr. Adams.

"That is well! that is well!" said my friend. "Let me see. Yes. Inclose your letter in a note to Mr. Main; state distinctly your object in visiting this country, and especially the Royal Observatory, and say that you will be at Greenwich at twelve to-morrow. He'll get it in the morning, and I will be sure to be there to receive you. Mr. Simms, give Mr. Mitchel some paper, and put a stamp upon it. He had better write at once. Well, sir, I bid you good day. We meet, I hope, to-morrow at twelve."

I sat down and followed the advice which had been dictated by so much generous good feeling, sealed my note, and placed upon it the head of Queen Victoria, which was equivalent to marking "post-paid,"¹ and left it to the care of my excellent acquaintance, Mr. Simms.

The prospect was brightening, and already at the close of twenty-four hours I felt myself at home in the heart of London.

The long standing of Mr. Simms as a manufacturer of astronomical instruments, as well as in science, had brought him into intimate connection with nearly all the distinguished astronomers of Europe. I had thus the opportunity, through his polite communications, of forming an approximate acquaintance with Airy and Herschel, with Sir James South, Struve, Schumacher, Gauss, Lamont, and others, with whom I anticipated the possibility of a per-

¹ Before stamps were used in America.

sonal meeting. I was, moreover, introduced to the manufacturers of London, as well as to those of Paris, and we scanned the chances of finding already finished an object-glass of the size necessary for the large telescope ordered by the Cincinnati Astronomical Society. I soon learned the utter impossibility of finding one in London. The largest glass in the shop of Troughton & Simms was but seven inches in diameter, and that desired for the Cincinnati Observatory must be at least twelve inches, or in the ratio of nearly eight to one in power. Hence, in London, no glass could be found which was of more than one eighth the power of the one in search of which I had commenced and thus far prosecuted my journey. The celebrated Dollond, whose shop I visited on leaving Troughton & Simms, gave me to understand that it would require full five years to construct such an instrument as had been ordered, and further added that he would not contract to finish one in any definite time.

I had placed but little reliance on finding an object-glass in London, ready made; but the amount of time necessary to make and mount a twelve-inch glass I must confess rather startled me, more especially as it was affirmed that the strong probability was, that, go where I might, from three to five years must be consumed in making and mounting. This prospect was not particularly cheering, but as the whole world was yet before me, I was not disposed to yield the hope that going farther I should fare better.

XIV.

GREENWICH AND WINDSOR.

THE next morning I found myself on the deck of one of those Greenwich boats (which leave each half hour during the day), on my way to keep my appointment at the Royal Observatory. A narrow channel in the river is kept clear of the shipping which lies upon either hand, by the strong arm of the law, and by a watchfulness and care truly commendable. I suppose not more than a few thousand collisions take place during each twenty-four hours.

Every craft, from the tiny skiff up to the line-of-battle ship, jostling, and thumping, and crushing each other for very straitness, and then the thousand lighters in the channel, kept in a constant flutter by the snorting steamers, which are perpetually dashing in upon them, the cries of the watermen, the shouts of the steamer boys, the songs of the sailors, form altogether a scene of the energy of man nowhere else to be witnessed on the surface of the globe. As to managing a steamboat by an engineer's bell, the thing is utterly impossible: a watch stands upon the bow, another on the wheelhouse, while a boy is stationed just above the engineer. The signal is passed, and the boy translates at the top of his voice; and from the moment the Greenwich boat leaves London bridge till it reaches the landing opposite the hospital, a distance of six miles, that boy's voice, shrill and piercing, is shouting, "Stop her!" "Go it easy!" "Go on ahead!" "Stop her!"

The towers and domes of the Royal Observatory, peering above the trees that fill the beautiful park which surrounds the buildings, were now full before me. Receiving the necessary directions, I landed, and bent my steps towards the great central starting-point of the world's move-

nents, — the point familiar to every schoolboy that ever looked upon a map, or pored over the mysteries of longitude and latitude. Passing the hospital on my left, within whose precincts were gathered groups of the old mutilated veterans, the remains of what had once fought England's battles, in their cocked hats and uniforms, I soon found myself at the iron gate by which one enters the Greenwich Park. This gate was in keeping with a substantial iron rail fence which surrounds the grounds attached to the observatory.

The summit of the hill, which rises, perhaps, one hundred and fifty feet above the level of the Thames, is crowned by an irregular pile of buildings, and surrounded by a heavy stone wall, or sort of battlement. The appearance is sufficiently imposing to strike the eye of the beholder, but the associations made a far deeper impression on my mind.

Making my way over the beautiful lawn which spreads out its ample and grass-clad surface from the base of the hill, amid groups of children and youths at their gambols, and here and there an old veteran asleep under the shade of a sturdy oak, while a herd of gentle deer were nibbling the grass around and near him, I came to the base of the hill, and in a few moments rang for the first time the porter's bell at the Royal Observatory.

Having been shown to the sitting-room, Mr. Main, the first and confidential assistant of Mr. Airy, soon entered and gave me a hearty welcome to the observatory. He had received my note, and still more had heard much of me and of my plans and wishes from my counsellor of the preceding day, who almost immediately made his appearance.

"Ah, sir, you are in time! — Well, Main," said Mr. Sheepshanks, addressing his friend familiarly. "you are busy, so return to your computations, and leave Mr. Mitchel to my keeping. — Come, sir," he added, in turning to me; "Mr. Main will join us when he gets through; in the mean time I know what you want, and we'll take a look through the observatory."

We passed the day in examining one instrument after

another, and in noting the various mechanical contrivances by which they are rendered effective in their operations. From the foundation of the pier, on which the instrument stands, isolated from every part of the building in which it is inclosed up to the openings or slits in the walls and roof or dome through which the stars are examined, everything was closely inspected, and the relative merits of each contrivance fully discussed.

In the afternoon we were joined by the principal assistant, Mr. Main, a young man whose position is sufficient evidence of his exceeding promise as an astronomer. I left the observatory in company with Mr. Sheepshanks, having received first the full freedom of the place, and an especial invitation to return after nightfall, and witness the practical operations of the observers.

In the evening I returned to Greenwich, and had the pleasure of taking my first lessons in instrumental astronomy from my friend, Mr. Sheepshanks, in the Royal Observatory. The details of these matters cannot be made interesting to the general reader: suffice it to say that I found observers busily employed at each of the different instruments, noting the silent movements of the celestial host. Here the astronomer keeps his nightly vigil; here it was, on this very spot, that the immortal Bradley wrested by observation the wonderful secret of the aberration of light, thus furnishing an incontestable evidence, and perhaps the only positive one, of the earth's motion round the sun. Here have been made and recorded the observations, from Flamstead down to Airy, which have furnished the data for the discovery of the sublime laws of the universe, and for a full exposition of the operation of these laws in their most ramified and extended influence. In short, no observatory has done nearly so much for the world as this, the details of whose interior I was now inspecting. All these details I was yet to learn, and even now I dared to entertain the hope that the same admirable system might be one day in full operation on the banks of the Ohio.

I lingered about this fascinating place, deeply interested, until the last opportunity of returning to London was

about to escape me. Mounting upon the box with the driver of the omnibus, at twelve o'clock at night, I started for my quarters distant about ten miles.

I spent most of the following day at the observatory in examining the modes of recording and reducing observations, and was presented with a full set of blank forms. These forms for recording and reducing observations had been drawn up as the result of nearly two centuries' experience. There are three distinct departments of astronomy, or three great steps in passing from the object in the heavens to its scientific history. First, a large number of observations, by skilful and careful observers, and with perfect instruments. Second, the reduction of these observations, or clearing them of instrumental and other errors, so as to give the absolute places of the stars and not the apparent places, correcting for refraction, parallax, etc., and finally reducing the star to its place at the beginning of the current year. This is far more laborious than the preceding. And thirdly, from these reduced observations, by the powers of analytic machinery and profound reasoning the entire astronomic history of the body is determined, both past, present, and future.

Now it happened that Slough, the recent residence of Sir John Herschel, and indeed the place in which his illustrious father made his great discoveries with his enormous forty-feet reflecting telescope, was and is within a mile or two of Windsor, and immediately upon the road. I determined to spend part of the day at Windsor, and attend service in the Queen's chapel, not indeed with any hope of being specially edified, but I was anxious to hear a royal discourse, in the royal presence, in the royal chapel, in the royal castle of Windsor. I confess frankly I did not forget the great reflector.

The day was beautiful, and thousands were on the wing, resolved to seek a purer air than that which comes reeking from the impurities of a mighty city. A few minutes on the train brought us to Slough, and having my plans formed I sprang from the cars, and mounted on the outside with

the driver of an omnibus ready to start to Windsor. The house and grounds of Sir William Herschel are on the road from the station to Windsor, and this identical railway has positively driven Sir John from the old family mansion, because of the facility afforded to strangers to interrupt, by well-meant but troublesome calls, the important investigations in which he is constantly engaged. So he has fled to the interior, where there is no railway. Taciturn as was the driver, by skill and ingenuity I succeeded in drawing him out sufficiently, at least, to have him point out the wonderful objects by the way. A short distance from the railway station we approached a small cottage with its trees, shrubbery, and garden looking in rather a neglected condition. "There," said the coachman, pointing in the direction of the cottage, — "there was the residence of Sir John Herschel, and in the back garden you may see the ruins of his father's great telescope."

Here was a cottage in all respects less interesting than hundreds I had seen before, and there was lying upon the ground an immense iron cylinder, looking for all the world like a great steamboat-chimney, of which I had seen hundreds without one particle of interest or emotion; yet here was an enchanted spot, and there lay the wizard's mighty tube, which by its magic power had transported its master millions and millions of miles through the thronged regions of space, thick strewn with myriads of suns and systems. On this stupendous journey he had passed the outskirts of our planetary system; he had discovered a new world, with six revolving moons, slowly and majestically wheeling round our central sun. Leaving the boundaries of our system, he had continued his onward flight until moon and planet and the sun itself had faded and been lost in the distance, and yet his journey was but begun. New suns, new systems, new planets, with their attendant moons, came on to meet him from out the heart of primeval space. These again were passed and lost in the increasing distance, until finally he stood upon the borders of the illimitable starry cluster, of which our sun forms one of the unnumbered millions.

Here he might well pause. If the distance from one sun to its nearest cognate in the same system is absolutely immeasurable, what must be the gulf of trackless space which severs one of these mighty starry clusters from another ! Surely mortal vision may never dare to essay the passage of this unfathomable gulf. But like some potent and irresistible conjurer, Herschel summoned to his aid a "higher power" and plunged across this wide abyss, and stood upon the confines of unsuspected regions : and on he went, until the myriads and myriads of flaming orbs which form our starry cluster, stretching in endless continuity throughout all space, contracted, and shrunk, and faded, till the whole vast and unbounded assemblage of suns seemed but a film of light upon the deep of starless heavens. Strange being, man ! more than half immortal while here on earth. By the powers of an analysis created from his own mind, he rolls back the tide of time, and reveals the secrets hidden and concealed by countless years, or, still more wonderful, he predicts with prophetic accuracy the future history of the rolling spheres. Linked to earth by indissoluble bonds, by his own creations he brings the heavens down, and bares its wonders to his scrutinizing gaze. Space withers at his touch, time past and future becomes one mighty *now*, and not content "with the infinitely great, with planets and suns and adamantine spheres, rolling unshaken through the void immense," he turns his penetrating glance downward, and myriads of living monsters start into being on every tiny leaflet, in every drop that sparkles in the sun.

But yonder in the distance rise the grim battlements of the far-famed castle.

Upon arrival — having deposited my useless luggage with a servant at the hotel below — I made my way to the castle. The royal pair had already passed into the chapel, and thither the crowd was tending. I reached the door of the chapel. The rich sunlight streaming in through the old stained glass with every tint and hue added greatly to the beauty of the scene. Having reached the centre of the building, my eye ranged curiously round the titled fair ones who occupied the few elevated seats in the chapel,

and I hoped that among them I might recognize the Queen. There was beauty enough, and grace enough, and diamonds enough, to have furnished a half dozen queens for a half dozen of the most powerful nations on earth.

Upon one side of the chapel there may be seen something resembling a private box in a theatre. There are glass windows of elegant plate glass which open upon the interior of the edifice. This is the box, or pew if you will, of her Majesty Queen Victoria and of his Royal Highness Field Marshal Prince Albert. The Prince is a slender and rather handsome-looking young man, with a delicate mustache upon his upper lip, and dressed when I saw him in a plain military frock with a red standing collar. The Queen was less distinctly visible owing to the powerful reflection from both surfaces of the plate-glass windows. She was plainly dressed so far as I could see, and with features not unlike those portrayed in the thousand and one likenesses which teem in every shop-window not only in England, but also in America. The singing and chanting and reading and responding were all done technically accurate, and all the performers were rewarded next day with honorable mention in the court journal. The Reverend Bishop finally ascended the little pulpit, nearly opposite the Queen's box, and took his text from the beatitudes in Matthew, "Blessed are the poor in spirit, for theirs is the Kingdom of God."

XV.

CAMDEN HILL.

I HAD read much of the private observatory of Sir James South, distinguished for his efforts to improve the object-glasses of England by the introduction of larger dimensions than had previously been employed, as also for his invaluable researches in company with his friend, Sir John Herschel, among the double stars. Another matter, of a less agreeable character, had given to Sir James an extensive notoriety in the astronomical world. Some ten years ago he became the possessor of one of the largest object-glasses which at that time had ever been manufactured, and resolved upon mounting it in the most perfect manner for the purpose of continuing his examinations of the nebulae and double stars. Troughton & Simms were the artisans employed to execute this most important job. The instrument was to be mounted equatorially, with all the modern improvements of clockwork, etc. If I mistake not, several years were employed in the execution of the work, and after many unavoidable delays the whole was finished, and the instrument was pronounced ready for the observer.

Sir James laid hold of his favorite, and having brought it to the test pronounced the workmanship defective, the instrument unsteady and entirely unfit for use, and finally refused to pay for the mounting. Whereupon a lawsuit followed which arrayed all the astronomers within striking distance of London on opposite sides, the one party taking sides with Sir James and testifying to the imperfection of the mounting, while perhaps a larger party embraced the interests of Messrs. Troughton & Simms, and gave in evidence their opinions that these gentlemen had acquitted themselves according to contract.

The rumor of these dissensions and of this celebrated lawsuit had reached me across the waters, and I felt a great anxiety on this account as well as on others to see the instrument which had caused such a commotion among the great star-gazers of England. Camden Hill, Kensington, the seat of Sir James, is some seven or eight miles from London, but easily reached at any hour of the day by omnibuses. Having resolved upon a visit, I called quite early in the forenoon upon Mr. Everett, hoping to get a line introducing me to Sir James, but unfortunately the minister was out. This was a disappointment, for time was precious, and the only person to whom I might now look for an introduction was Sir John Lubbock, who lived some two or three miles in a direction precisely opposite to Camden Hill. There was no alternative, the streets were finally threaded, and I rang the private bell at Sir John Lubbock's Bank. But alas! the banker like the minister was taking an airing, and I was again thrown on my own resources.

To waste any more time in looking for letters was impossible, so I resolved to write one myself. I had full opportunity during the ride to Kensington to frame any number of plans. To examine, discuss, and reject, however, was about all I accomplished. Within an hour after leaving Charing Cross I stood at the outer door or gate in a high wall which inclosed the lawn and grounds belonging to the beautiful residence of the astronomer. I rang and the servant appeared. Sir James was in. I took out a card and wrote my letter of introduction in these words:—

"O. M. Mitchel from the United States wishes to consult Sir James South on the subject of erecting an observatory at Cincinnati, on the banks of the Ohio."

Having conducted me to the parlor, the servant disappeared with my card, and soon reappeared with the answer that his master would be down in a few minutes. I looked round the elegantly furnished parlors and out upon the beautiful lawn and gardens which stretched gently descending towards the village, and thought that the life of an

astronomer was not quite so self-sacrificing as it might be. I had but short time for thought, for my reflections were interrupted speedily by the entrance of the knight to whom belonged this beautiful estate. Sir James, I should think, is over fifty, rather short and sufficiently stout to be thoroughly English, with a broad face, large features, expanded forehead, upon whose smooth surface the fingers of care and mental toil have not yet left any traces. There is in the expression of his honest countenance an amount of good-humor and frank, open hospitality, which, to say the least, must be peculiarly charming to all who visit him as unceremoniously as I did.

He advanced to meet me, and giving me a hearty shake of the hand, stopped me short in the apologies I had commenced for thus intruding myself, a stranger, and without even a line to insure him against imposture.

"Your object," said the knight, "is a sufficient letter of introduction, and now, sir, I know exactly what you want, so please follow me to the observatory." The day was spent in examining and discussing the various plans for an observatory and the different modes of mounting the instruments. One apartment was examined after another, until finally we reached a large room surmounted by a dome of great size and of an expensive construction, while fragments of the framework for mounting a great equatorial were scattered round.

"Here, sir," exclaimed Sir James, "you behold the wreck of all my hopes. Here I have expended thousands, and flattered myself that I was soon to possess the finest instrument in Europe; but it is all over, and there's an end."

I remarked that the object-glass was still in his possession and might yet be mounted so as to realize his hopes and expectations.

"No," said Sir James. "Struve has reaped the golden harvest among the double stars, and there is little now for me to hope or expect."

It would be difficult to appreciate the feelings which at that moment were sweeping through the mind of the

astronomer. Long-cherished visions of fame and high distinction, nay, perhaps of grand discoveries in the heavens, which for years had played round his hopes of the future, had fled forever. Another "had reaped the golden harvest," and like Clairaut, who wept that there was not for him as for Newton, the problem of the universe to solve. Sir James could almost weep to think that another's eye had been permitted to sweep over the far distant realms of space which he had long hoped might remain his own peculiar province.

Having spent most of the day in examining and noting matters of importance, I returned to London, after receiving a pressing invitation to spend the night in the observatory should the evening betoken a cloudless sky. This invitation I did not fail to accept, for thus far I had been obliged to curb entirely my eager curiosity to examine the wonders which the fine instruments I had only looked upon, but not through, might reveal to the eye. True, I had spent a deeply interesting evening at Greenwich, but it was the scientific use of the instruments to which my attention had been exclusively devoted. I had learned how to take a transit, to measure a polar distance, and to determine the ratio of the polar and equatorial diameters of a planet, but as yet no high magnifying power had been employed, and the magnificence of the telescopic views of the heavens existed still as a matter of faith and not of sight. Now it should be remembered that I had dared to represent mechanically, by an apparatus of my own construction, these sublime views in the heavens, and one may well imagine how great was my anxiety to verify the accuracy of my own representations.

Jupiter and Saturn would be on the meridian about nine o'clock, while the moon in her third quarter would rise late enough to give us full time to examine all the more delicate nebulae and double stars that might chance to be above the horizon.

As the evening drew on I watched the clouds with no small interest. When they finally rolled themselves up like a vast curtain from the west, leaving a clear and transpar-

ent atmosphere and a sparkling hemisphere radiant with gems of beauty above, I chartered a cab for the night, and made my way to Camden Hill. I found Sir James in the observatory.

"Come," said he, "I wish you to try your hand at observing a transit."

I remarked that I had never performed the operation, and had never seen it performed until the evening before at the Royal Observatory.

"Never mind, never mind, sir; a beginning must be made, so down with you upon the observing chair, and I'll count for you."

I took my place as directed, but must confess frankly that it was a greater effort to command an entire presence of mind in the position I then occupied than in any post of danger I had ever filled, though these had been, in not a few instances, sufficiently perilous to shake the stoutest. Sir James took up the count from the face of the clock, the star entered the field of the telescope, and it was my business to indicate the exact instant at which it passed each of the seven wires which were within the telescope, equidistant, vertical, and parallel to each other.

The star, by the diurnal motion of the earth, approached the first wire. It seldom occurs that it is bisected by any wire at the instant the clock indicates a whole second. You count 21, 22, 23, and, say, between the counting of 23 and 24 the star passes a wire: The accuracy of the observation consists in estimating correctly how many tenths of a second are to be added to 23 whole seconds, to give the exact instant of passage. This is done by conceiving the space through which the star appears to move in one second, divided into ten equal parts, and judging how many of these equal parts are upon one side and how many on the other side of the wire, in that interval of space passed over by the star between the two seconds at which the transit occurs. I had only to give to Sir James the tenths in addition to the whole second which he was counting. The star crossed between 23 and 24, and I called out 23 and 3 tenths, which Sir James recorded, still

continuing the count. The second wire was passed between 31 and 32. I called out 31 and 7 tenths; and so of all the wires. The seven wires having been passed, by adding up the seven observed times of transit and dividing the sum by seven, the quotient should be exactly equal to the observed time of passing the middle wire. By the veriest good luck in the world, the test having been applied to my observation, the coincidence between the mean of the wires and the time of passing the middle wire was remarkably near, so near, indeed, that I did not dare to repeat the experiment for that night. I had taken my first practical lesson, and had gained the applause of a master who, perhaps, in this department knows no superior. Let those who look upon success under the same circumstances as an easy matter make the effort, and if I mistake not they will find more stars dancing before their eyes than there were "lights in the temple of Solomon."

From the Transit Room we passed into the Equatorial Room. Sir James stepped up to the instrument, and giving to it a position by means of the circles, directed me to place my eye to the telescope. I did so, and beheld two beautiful stars, the one yellow, the other blue.

These two stars to the naked eye appear as a single one, while under the magnifying power there used, they were widely separated, — at least six or seven diameters of the stars. Here was the first double star I had ever seen: two suns physically associated, bound together by the same mysterious power which fastens the planets to the sun, each star doubtless surrounded by its scheme of revolving worlds, and each with its retinue of worlds revolving round the other, or both round their common centre of gravity. It was the double-star Iota in the constellation Cancer. The instrument was again fixed in position, by its circles, and again I was directed to examine and see what was visible.

Two small stars, of nearly the same size and color, were near the centre of the field. "There," said Sir James, "you see the most rapidly moving bodies of which we

have any knowledge. There are two suns revolving round each other in a less period than Saturn revolves around the sun. So short is the period that observations of two weeks were sufficient to determine it."

I had lectured on these very stars, and had presented them as evidences of the extraordinary and restless activity which pervades these remote regions of space,—for they were not probably nearer than one hundred and forty millions of millions of miles,—but little did I suppose that I should ever behold these wonderful bodies, and much less to have them pointed out to me by the very individual who had discovered their motion and determined their periods.

The planets Jupiter and Saturn were approaching the meridian, and we went to the yard, where, in the open air, on a temporary wooden frame, was mounted a large telescope, and here for the first time I had the opportunity of seeing, without a shadow of doubt, that wonderful sight, the separation in the rings of Saturn. With a small telescope I had watched this beautiful planet night after night at home. But how different now the appearance! A jet-black line, running nearly round upon the surface of the immense rings, clearly indicated the division which exists between these most extraordinary appendages, and there, too, were the satellites or moons which I had never seen before. This planet I had pictured from a drawing taken by Sir John Herschel, and the object now before me in the field of the telescope was scarcely so perfect as the picture I had made and exhibited before I had ever seen the original. I mean by this that the picture presented the appearance of the planet under the most favorable condition of the atmosphere, for it should be remembered that every undulation in the air is magnified in proportion to the power employed in the telescope. The views which I had of Jupiter and the moon also verified my pictures of these beautiful objects.

Sir James now directed the telescope to a part of the heavens in which, to the naked eye, there appeared no object of interest.

"There, sir, look and tell me what you see," said my most excellent guide.

I placed my eye to the telescope, and in the centre of the field a most delicate and beautiful object presented itself. I instantly recognized it, and called out "The annular nebula in the constellation Lyra!" The form was that of a hoop a little flattened; the light was soft and delicate, a mere haze of brightness, and yet there is reason to believe that every particle of this light emanates from the vast system composed of myriads of suns, and so distant that the light, travelling with a velocity of twelve millions of miles per minute, had been on its journey more than fifty millions of years!

What a thought! — a physical union between myself and objects lying on the very verge of penetrated space! Having lingered upon this magic spot till the stars with which I had been holding converse, as well as my cabman, reminded me that we had long since passed the "noon of night." I bethought myself that this was not nearly so interesting to my host as to myself. I apologized for my imposition upon his patience, and would have taken my leave at the moment, but that just then coffee and other refreshments were brought into the observatory.

Another ring at the outer bell hastened my movements for fear of being obliged to walk to London, a thing I had no disposition to do at such an hour of the night.

I took leave of Sir James not without some regrets at having incurred a debt that was likely to remain uncanceled forever. Should these lines ever meet the eye of the astronomer,¹ when he learns that the attentions bestowed upon the self-introduced stranger gave to that stranger an influence which has assisted him in the accomplishment of a most difficult enterprise in behalf of his favorite science, he may possibly transfer the charge now standing against me personally to the heavy debtor column already entered in his books against science.

¹ An expectation never fulfilled. The MS. was destined to accumulate dust for forty years, and Sir James South, if alive, would now be a hundred years old.

The hum of the millions had gradually died away upon the ear of night, the lamps were beginning to burn dimly in the deserted streets, when I reached the metropolis. In passing St. Giles an occasional burst of coarse and savage glee told that the tenants of this dreary region had not yet finished their last wassail in their gloomy abodes.

XVI.

ARAGO.

I WAS now ready to resume my scientific pilgrimage. The island of Great Britain did not contain the object of my search. The workshops of the Continent were yet before me, and to these I was now ready to repair.

From the catalogues of Cauchois, Gambay, Lehrebour, and others I had many hopes of success in the great centre of art and science, the city of Paris. The railway from London to Southampton renders this a desirable route to those who are anxious to travel with dispatch. We reached this seaboard town in some three or four hours from London, and drove immediately to the Havre steamer. Our little vessel was sufficiently filled with passengers, from all nations and tongues and peoples, to keep one imperfectly acquainted with several languages in fine practice for the coming practical operations of the Continent. We left Southampton in the evening and coasted the beautiful Isle of Wight at a time when the powerful contrast between the hilltops glowing in the rays of the setting sun, and the deep shadow of the valleys, added greatly to the picturesque sweetness of its scenery. The evening was fair, and the sea smooth, and the stars shone out with a clear lustre, which would have unnerved an astronomer separated from his tubes and his glasses.

The evening was spent on deck in company with a young Irishman and his sister, who were journeying from the land of potatoes to the land of frogs as a matter of pastime and pleasure. The acquaintance was formed after the Western fashion, without the ceremony of an introduction. There is a charm in an educated Irish lady, not found elsewhere perhaps on the globe. All the honest, full-

hearted, noble confidence of her countrymen is mellowed and softened in the fairer sex, retaining all that is winning and losing all that is abrupt or repulsive. And then the brogue, just slightly upon the tip of the tongue, bending each word into a sort of curve of beauty, makes their language music to the ear.

Seasickness, the dread and horror of all who are for the first time upon the ocean, seemed to have conjured up some of its most direful pictures before the minds of my new acquaintances. The brother knew he would be sick, was determined to be sick, and was sick accordingly, though to me it seemed as though one might have as well grown sick while paddling a sugar-trough on a mill-pond. The lady, being left somewhat in my charge, I was in duty bound so to engage her attention as to banish the thoughts of the dreaded attack. Long years had rolled by since I had played at that game, but it is strange how naturally one falls into old habits. Perhaps the power of early habit was aided in this case by the fact that I had now travelled nearly four thousand miles and had not as yet spent twenty minutes in the company of a lady. Be that as it may, one thing I am sure of: the Irish beauty thanked me at the end of the journey for having guarded and preserved her from the horrors of seasickness.

When I reached the custom-house I found my luggage had been already examined, my keys having been left for that purpose. All was sent to the diligence, and I made my way to a hotel, where I took a hasty breakfast.

I entered the coupé of the diligence, or that apartment next the horses, with seats for three persons, and with windows in the front and upon each side. The driver is perched upon the roof of the apartment, and yet behind and above him is the imperial. One of the places of the coupé was occupied by a swarthy son of the South, a Spaniard from the West Indies, while his travelling cloak, hat-box, etc., occupied a second, leaving the third for my tenancy. When one is in France, the hypothesis seems to be that everyone met is a Frenchman, and hence strangers almost invariably address each other in French. Should

the same persons meet as strangers in Germany, they would commence their conversation in German. So the Spaniard and the American, out of compliment, I suppose, to the country, saluted each other in French.

A seat in the coupé gives to the traveller an excellent opportunity of inspecting the country, as the view is fairly open in front and upon either hand. The road leading from Havre de Grace by way of Rouen to Paris is broad, smooth, well graded, and macadamized. The first peculiarity on the road which strikes the stranger is the total absence of any and everything in the shape of an enclosure. The country is in a high state of cultivation, and doubtless tilled by different farmers, and yet imaginary lines of division separate the lands of one from those of another. The fields looked well, but constantly reminded me of a picture without a frame. We travelled with great rapidity, and under a full head of whip-power. The postilion beat his horses, and every blue-shirted teamster who met us on the road amused himself and assisted the driver by giving each horse a blow as he passed. The thought occurred to me that it was well these were French horses, and accustomed to a monarchical form of government; for an American team, with a tithe of the oppression, would have run away with the concern, and would have dashed everything to atoms. The harness, the horses, and the carriage are admirably matched, each rough, coarse, heavy, and unwieldy. The dashing taste displayed in an English team, in their trappings, and in the lightness and beauty of the coach, are unknown in France. And yet we travelled rapidly, making about nine miles an hour, including the changes, which were effected in the least possible time. No one can complain of roads, or delay, or of being crowded, or of danger in an upset, though the conveyance is loaded with all the luggage on the deck.

We travelled all night, and at about seven o'clock on the following morning came in sight of the suburbs of Paris. As we entered by the old road of Neuilly, we caught a distant glimpse of the magnificent Arc de Triomphe de l'Etoile. The structure is a worthy entrance to

the superb avenue which penetrates from it through the Champs Elysées, La Place de la Concorde, and the garden of the Tuilleries, to the Palace itself. We brought up in the courtyard of the post-office, and after no small difficulty, I succeeded in extricating myself from the focus of confusion, and sought peace and quiet at Meurice's Hotel, opposite the garden of the Tuilleries.

Having visited the bureau, entered my name, examined the list of those in the hotel, surrendered my passport, etc., etc., I repaired to the coffee-room, and found that a ride during the night had by no means destroyed my appetite.

Having breakfasted, I started at once on my tour among the opticians of Paris. On crossing the Pont Royal, my eye was attracted by the curious signs, with their singular names and queer language, which decorated the exterior of the long range of shops fronting the river. My eye at length rested on one which had faded under the power of time and storm until the letters had become dim and indistinct. After some difficulty I read "*M. Cauchoix, Opticien.*"

While a student at the Military Academy at West Point, I had studied the scientific works of Biôt, one of France's most distinguished scholars. In his philosophical works frequent reference is made to his contemporaries, and especially in his "Optics" he makes frequent mention of those with whom he was associated in conducting his experiments in light. Cauchoix, a celebrated optician of Paris, appears to have been one of Biôt's intimate associates, and the expression "M. Cauchoix and myself" occurs so frequently in Biôt's "Optics," that it became a byword among the class of which I was a member; and in relating any matter in which we were assisted by any of our companions, it was always "M. Cauchoix and myself" who did so and so. Some fifteen years had rolled by since the name of M. Cauchoix had passed my lips or occupied my thoughts. Here was undoubtedly my old friend, and I determined to pay him my personal respects at once. I needed no introduction, for my business gave me free access to every optician I might choose to visit. I mounted a flight of

stairs to the second floor, and in a few minutes "M. Cauchoix and myself" were in earnest conversation as to the possibility of procuring a large object-glass in Paris. I thought then of my boyhood, of my old class-mates, and however interesting M. Cauchoix might have proved independent of early associations, I am confident he stood before me in the light of an old friend, and it seemed that I was again at home even in Paris.

Thus commenced a series of calls upon the opticians of Paris. Within two hours after my arrival I was in the optical institute of M. Gambay. Here I found a vast variety of work in progress, — optical instruments of almost every description, from a pair of spectacles up to a nine-foot transit. I was in search of none of these, and when I inquired for twelve-inch object-glasses, the optician stared at me with astonishment.

"We do not keep such large glasses, and I fear you will hardly find one in Paris," was the reply.

From Monsieur Gambay I went to Monsieur Combé, and from Monsieur Combé to Monsieur Cauchoix, and from Monsieur Cauchoix to Monsieur Lehrebourg, and thus on from Monsieur one optician to Monsieur another, until I had pretty fairly traversed the various arrondissements of the great city, and in the whole of Paris I found nothing which could be converted into an equatorial such as the society I represented desired within less than three or four years.

After dinner I paid my respects to his Excellency General Cass, Envoy Extraordinary and Minister Plenipotentiary to the Court of St. Cloud. The general gave me a letter to M. Arago, the director of the Royal Observatory.

At eight o'clock on the following morning I was seated in the anteroom of the Royal Observatory. M. Arago¹

¹ François Dominique Arago was born in 1786 at Estagil (Oriental Pyrenees). After being graduated at the Polytechnic School in Paris he was attached to the Bureau of Longitudes, and in 1806, with M. Biôt, measured an arc of the meridian on the earth. Not long afterwards he became director of the Observatory. This position he

was engaged with another visitor, and I was left to my reflections for some fifteen or twenty minutes. I amused myself among other matters with drawing in imagination portraits of what I presumed the great savant ought to be. I knew that for thirty years or more he had been at the head of science in Europe. I argued that to attain so distinguished a position thirty years ago he must have been then at least forty years old: hence, his age could not well be short of seventy years. As to his appearance, of course he must be deeply wrinkled, pale and cadaverous, thin and shrivelled, — the legitimate effects of severe and long continued scientific study. As to his disposition, this ought to be morose, crabbed, and impatient, and easily put out of humor by any interruption. Such was the portrait which I drew of the great man I had never seen.

I was interrupted in my reverie by the porter, who conducted me to the door of the philosopher's room, threw it open, and I stood in the presence of a tall, commanding figure with a noble countenance, long, jet-black hair, and one of the most frank, amiable expressions I had ever seen. He knew me to be the person who bore a letter for him, and gave me a most cordial and hearty welcome. This was M. Arago. How wonderful the contrast between my imaginary pictures and the person himself! His age is about fifty-six, while he looks to be about forty-five, and he is decidedly the finest-looking gentleman I saw in France. Wild as I was from the backwoods of America, the presence of so distinguished an individual might have been sufficient to have produced no small amount of agitation; but when we come to superadd to this cause the fact that I was addressing him in a foreign language, it is scarcely to be expected that my blood coursed through its channels with its accustomed moderation. The room was that of a philosopher. Books, pamphlets, manuscripts, papers, were lying in the greatest confusion to my eye, perhaps in the most perfect order to M. Arago's, all round

held till his death in 1853. In 1886, the centennial of his birth was celebrated at Paris with great ceremony.

the room. As if to reassure me and cause me to feel that the nation of which I was the unworthy representative in this court of science already held no mean place in the affections of this scientific monarch, in glancing round the room my eye rested upon a copy of Bowditch's translation of Laplace's "*Mécanique Céleste*." Translation, as it is, of the most profound work ever written, the notes and addenda by our countryman are well worth the text, and the author, had he selected a translator for his own fame, would have perhaps preferred one less erudite.

After conversing for some time with M. Arago in French, having unfolded to him the nature of my mission to Europe, and the object I desired to accomplish, when we came to speak of the characteristics of the various instruments which I designed to procure, of their adjustments, etc., I observed to the philosopher that he must observe my deficiency in the use of the French, and begged that he might change to the English language.

"*Pardonnez moi! pardonnez moi!*" he exclaimed, "I cannot speak English with you, sir. Your French is so much better than my English that I should be ashamed to attempt a single sentence in your presence."

Having consumed some thirty minutes in conversation, the astronomer offered to conduct me through the observatory. I knew his engagements and begged him to turn me over to one of his assistants, which he politely declined, and went with me in person to every apartment.

The Royal Observatory of Paris is fitted up on a scale of magnificence, so far as buildings are concerned, far surpassing anything I saw in Europe. The instruments, however, are not so fine as those I found in several other places. We stopped for a moment in the great lecture-room in which M. Arago is accustomed to charm the multitude which throngs to hear him from every quarter of Paris.

The illustrations employed in astronomy are paintings on boards, being mere diagrams or imperfect pictures of objects in the heavens. I thought of my own apparatus for a like object, and said to my conductor that I had

dared to deliver popular lectures on the banks of the Ohio, and that I owed my success, I presumed, to the beauty of my mechanical illustrations. He inquired quickly what plan I had adopted, and on explaining my method he passed a compliment upon the accuracy, simplicity, and beauty of the system.

We returned to his study, and I remarked to him that I had searched Paris in vain for an object-glass of large size, which could be mounted within any reasonable time. I knew from the character of my countrymen, that to announce that four or five years were necessary to furnish an instrument was equivalent to an abandonment of the whole enterprise. That under these circumstances I had almost resolved to penetrate as far as Munich, perhaps to Vienna, and return, if necessary, by way of Hamburg. M. Arago told me that my journey would be a long, tedious, and fatiguing one, and what could not be found in Paris could not be found elsewhere; and that I must make up my mind to wait patiently for several years after the order should be given, unless I might accidentally find an instrument such as I wanted in the hands of some person who might wish to abandon its use.

Having consumed as much of the seer's time as I conceived might be excused on any fair and reasonable grounds, I took my leave, not without first receiving a polite invitation to return to the observatory and there prosecute the study of instrumental astronomy as long as I might desire.

I returned to my hotel in great doubt and perplexity. The positive tone in which M. Arago had expressed his opinion on the subject of any better success elsewhere than in Paris, coupled with the thought that in case I should utterly fail I might be censured at home for making so long a journey in opposition to the advice of so distinguished a man, produced for a moment a state of indecision harassing in the extreme. My resolution was soon taken. To stop where I was would be equivalent to an abandonment of the enterprise; to go forward could result in nothing worse. So onward I determined to go.

Having made up my mind, I was ready to listen to the advice and opinions of my friends, who after due deliberation unanimously gave a decision in accordance with the one I had arrived at, and I made my preparations to leave Paris.

XVII.

THE GOAL.

WHEN I entered the coupé of the diligence, on renewing my journey, one seat was already occupied by a very good-looking gentleman, of fine countenance, about middle age, and wearing withal upon his face the mark, if not the reality, of thorough good-nature and downright honesty. The uproar and confusion which always attends the starting of the diligence in Paris was doubtless increased on the day I left, because it was Sunday evening; and it seemed to me that things would never come right, and my *compagnon* had kissed his hand adieu to a friend, perhaps the fiftieth time, when, sure enough, the *conducteur* gave the word, and crack went the postilion's whip.

The sun was flinging its last rays upon the lofty spires and domes of Paris as I passed the fortifications, and we were soon fairly out of the city, with a journey lying before me of which I knew nothing of the other end. My first stopping-place was to be Munich, which, from the best information I could gather, would be reached in six or seven days and nights of hard travel. I found my solitary companion to be a highly polished and educated gentleman, who spoke his own language to perfection, but was profoundly ignorant of any other. We soon became acquainted, so far as to learn that we would probably journey together as far as Strasburg. He had travelled the route several times, and proffered me the aids of his experience.

The shades of night soon gathered round us, and at a reasonable time for retiring my companion took out his handkerchief, tied up his head, and was soon in the land of visions. The novelty of the scenes through which I was passing, the singular appearance of the country, the foreign

air of the hamlets and villages, the stately form of some old cathedral, or the grotesque appearance of some antique chateau, absorbed my attention and kept me on the *qui vive* until far past midnight. Sleep, finally, claimed its own, and rolling steadily along over the smooth surface of a beautiful broad road, with no jerks or jolts, or driver's horus, to break one's slumber, I slept and dreamed of home.

My route lay through Chalons, Strasburg, Schaffhausen, Lindau, and Ulm. At the post-house in Ulm I noticed a good-looking, middle-aged gentleman, with his travelling cloak on one arm and a lady on the other. They stood near the Eilwagen in which I had secured a place for Augsburg. I addressed the gentleman in German, and soon learned that we were to be fellow-travellers. The conversation continued a few minutes, when finding that my new acquaintance spoke the German with difficulty, it occurred to me that they were French. I changed my conversation into French, and no special notice being taken of the change, we continued to converse for some time in the latter language. Finally, the gentleman turned to his wife and said, "Come, my dear, I think we had as well get in," and this, too, in genuine old English. I could not restrain a burst of laughter. The gentleman stared. "What," said I, "have you been talking German and French to me all this time for?" "Bless my soul," said he, "can you talk English?" "My dear sir, I can't talk anything else." "Then get into the same apartment with us," said the Englishman, for such he proved, "and let us have a comfortable talk once more in English. After so many barbarous languages it is a real pleasure to meet with one who speaks our own language."

Thus was formed a pleasant acquaintance which, fortunately, continued many days.

We crossed the Danube, a small and insignificant stream thus high up, and entered the kingdom of Bavaria. The day passed rapidly by in the company of my amiable friends, whose agreeable conversation and kind manners I shall never forget. We reached Augsburg about three o'clock in the afternoon; and here we took our tea in company,

and I had the luxury of being served with my tea at the hands of a lady. At five o'clock we entered the railway train, and between nine and ten at night reached the capital of the kingdom of Bavaria, the Athens of Germany, the beautiful city of Munich. Extricating ourselves as rapidly as possible from the noise and confusion of a railway depot, I accompanied my English friends to the Hôtel de Bavière, or, in German, Der Bayrische Hof.

Since my last quiet sleep in bed I had traversed the kingdom of France, the grand-duchy of Baden, the republic of Switzerland, the kingdom of Wirtemberg, and was now about to seek the luxury of absolute rest in the capital of the kingdom of Bavaria. The fatigue of an incessant journeying had been sustained by my anxiety to reach this stopping-point, and the object once attained, the excitement over, nature overwrought began to show symptoms of rebellion and mutiny. I found my bed, for which I had so often sighed during the tedious nights of my journey, anything but a downy one. Sleep came and went, fitfully disturbed by unpleasant dreams, and after a restless night I awoke in the morning, under a high fever, headache, and on trying to rise found that it was with difficulty I could keep my feet.

I sat down on my bedside, and a current of thought, not by any means the most cheering, swept through my mind. Five thousand miles from home; in a strange country, among foreigners of whose language even I had but an imperfect knowledge, with a peculiar constitution which could be managed with difficulty by even those who had studied it for years. Sick! absolutely sick! How the kindness of the far distant ones sweeps across the memory at such a time! I found that to give way to reflection would never answer, so I rallied what little strength remained and walked down-stairs to the coffee-room. It was early. Few had, perhaps, yet risen, and I was a solitary tenant of this magnificent saloon. I called for breakfast, but when the diminutive quota was placed before me, my stomach refused to receive, and a few mouthfuls was all I could swallow. I again repaired to my solitary chamber,

and threw myself on the bed, with a desolate feeling which must be felt to be comprehended, and to describe which the words have not yet been invented.

Such was my situation when I was aroused by a knock at my door. I was as much startled as was Robinson Crusoe, when he found footprints on the sands of his desolate island. I knew not in what language to bid my visitor to enter, so I rose and opened the door. My English friend, whose acquaintance I had formed in so amusing a manner at Ulm, stood before me. His wife had missed me from the coffee-room, and had requested him to come up and ask me to breakfast with them.

Reader, did you ever experience the kindness of a gentle and amiable lady? There is a softness, a tenderness, which thrills through the heart, producing sensations which no other cause can arouse. I felt a change flash through my system in an instant. Friends, and even kind friends, were near me, and the gloomy spectres which had clustered around me vanished, touched by the wand of hope. I went down to the coffee-room again, but with far different feelings. My appetite came, and with a lady at the head of the table, and a most amiable one too, who could refuse to eat? As I ate my strength returned. With my strength came my spirits, and with my spirits the eager desire to learn, as early as possible, the fate of my visit to this far distant city. By nine o'clock I found myself sufficiently recovered to venture forth. I took a fiacre, and drove to the Optical Institute of the celebrated Frauenhofer. My fiacre stopped, I alighted: I had reached the terminus of my great search, and in three minutes my fate would be decided.

I was conducted to the office of M. Mertz, the successor of Utzschneider, the successor of Frauenhofer. M. Mertz spoke little or no English, and but very little French. I spoke German indifferently, so we managed to commingle the three languages together in a most skilful and scientific manner. I told him I had travelled many thousand miles in search of an object-glass of superior quality and size; that I had examined London in vain; I had searched Paris with no better success; and that, in spite of the ad-

vice of the Parisian philosophers, I had penetrated as far as Munich, and here I had centred my last hope. M. Mertz requested me to examine his collection of finished glasses, and for this purpose conducted me to his cabinet.

A more beautiful display I never beheld. "Here," said M. Mertz, pointing to a glass of gigantic dimensions, "here is one of the same size as that manufactured for the Emperor of Russia, and now mounted in the observatory at Pultowa. Here is a size smaller, which, being equal to that in the Royal Observatory of Bavaria, has been fully tested by our astronomer, Dr. Lamont, and is reported on in the '*Astronomische Nachrichten*.' It is perfect. Here is a size still smaller, but a little larger yet than the celebrated Dorpat glass, with which M. Struve has made his researches among the double stars; and here are other smaller sizes, among all of which I hope you may not be disappointed." My journey was at an end. I had thought of penetrating even to the capital of Russia, but here was all and more than all I had ever expected or desired, and the transition from doubt and suspense to certainty was so sudden and unexpected that I could scarcely realize its truth. Here I saw, perfectly finished, a glass which I presumed from two to three years would be necessary to complete. The glass upon which I fixed my attention was the one which had been already tested; and I determined to pay a visit to the Observatory, form the acquaintance of Dr. Lamont, and inquire into its merits. After spending an hour or two in inspecting the various apartments of this far-famed establishment, I returned to the hotel, and about one o'clock, in company with M. Ertl, an astronomical instrument maker of high reputation, to whom I had delivered a letter, I started for the Observatory, some two miles distant.

We ascended an elevation which rises, perhaps, a hundred feet above the low grounds through which the Isar flows. On this elevation the buildings of the observatory are erected, not remarkable for the elegance of the architecture, but distinguished for the superiority of the instruments which they contain. The present director of the

observatory, Dr. Lamont, is a native of Scotland, but so long a resident of Germany that his own language is becoming strange to him.

The astronomer received us with an ease and unostentatious courtesy which charmed me at the moment, and five minutes had not passed until I found myself as perfectly at home in his presence as if we had been friends for years. The great men of the Old World, I mean the truly great, are more easily approached than any class of men with whom I ever had the opportunity of meeting. My business was soon developed, and the amiable doctor heartily congratulated me on the success of my efforts at home in behalf of his favorite science. We then visited the various rooms of the observatory, and finally proceeded to a detached building, erected expressly for the equatorial telescope.

When we entered the room in which this instrument is located it was very dark, there being, from the nature of the structure, but little opportunity for windows, and but little need for them. My conductor stepped to a small side closet, the door of which he opened, took by the handle a small wheel and axle, commenced turning, when, to my surprise, the entire roof, in one solid mass, slowly receded, and we stood in an apartment without a cover. There, full before me, in all the perfection of mechanical skill, rose from its solid rock foundation one of the most magnificent instruments that ever charmed the eye of an enthusiast. A sudden exclamation of delight, astonishment, and admiration burst from my lips, much to the amusement of my learned host. After the first ebullition of surprise had subsided I commenced an accurate examination of this splendid instrument. Having shown me fully every part of the mechanism, and having explained the accuracy of its performance, the doctor said to me, with a smile, "Come and spend the evening with me, and let me show you its powers. The evening will be fair, and the distance is short to the city." This invitation, of course, was accepted with great pleasure. I solicited permission to bring my English friend and his wife.

As the sun was setting, a fiacre which had been ordered drove up to the door of the Hôtel de Bavière, and, accompanied by my English friends, I returned to the Observatory. It was a most charming evening. The streets of the city, thronged with the gay and the beautiful, presented a most animated appearance. All the city was breathing the cool evening air which came charged with freshness from the distant Alps. The proud promenade of Munich, "The English Garden," was alive with merry groups, while the music which came from the thick groves told that preparations were making for the dance, if, indeed, it had not already commenced.

We reached the observatory in the gray of the lingering twilight, and were received in the most kind and polite manner by the distinguished director. Fortunately for us, the moon was just in her first quarter, presenting, perhaps, the most interesting condition for examination with high magnifying powers. Those two wonderful planets, Jupiter and Saturn, were not far distant from the moon, while other objects of interest among the double stars and nebulae presented a field for examination sufficiently extensive to satisfy the most anxious curiosity. Under the guidance of the doctor we were immediately conducted to the Equatorial Room, and the sliding roof having been rolled off, the starry heavens shone down upon us in all their calm beauty. The telescope was first directed to the upper horn of the moon.

It is difficult to convey by words any idea of the splendors which are revealed to the eye by these great refractors. The enchanted carpet, told of in the fairy tale, had not the power of the astronomer's glass. The carpet transported the person who stood upon its surface to any point upon the earth, while the astronomer's tube lifts the beholder from earth towards heaven, and in one single instant carries him through space thousands and even millions of miles towards the object he desires to examine. The moon's distance from the earth, in round numbers, is two hundred and forty thousand miles. With a magnifying power of one thousand, the eye being placed to the tele-

scope, the observer is instantly taken to within two hundred and forty miles of the moon's surface, and there stationed in space, he may quietly inspect her mountain heights, her rocky precipices, and her deep dells. The line which separates the dark from the illuminated part of the disk, and which, to the naked eye, appears a soft and gentle curve, is found to be so rough and irregular that it can scarcely be called a line. At one place a range of mountains, lifting their silver peaks above the surface, throw back the sun's rays, and running far into the dark part, their summits catching less and less of the light, look like a string of dazzling pearls. At another point some mighty valley, perhaps forty or fifty miles in breadth, and hemmed in by a mountain range, is sleeping in the deep shade, while the mountains which environ it are bathed in light, and throw their long and spear-pointed shadows far in the vale below.

The telescope was next directed to Jupiter, when a globe of surpassing splendor, accompanied by four bright and beautiful satellites, was revealed to the eye. The variegated surface of the planet, its dark and luminous belts, the rapid motions and perpetually varied positions of its moons, their eclipses and their transits across the disk of the primary, present objects of interest, with the examination of which the eye can never grow weary.

But a still more complex and astonishing system awaited our examination. The telescope was directed to a small dim star, not far distant from Jupiter, presenting nothing remarkable in magnitude or brilliancy to the unassisted eye. But with a power equal to one thousand eyes, how great the change! An orb of surpassing beauty, encircled by two broad flat rings, and engirdled by no less than seven moons, comes up from out the deep distance to greet the astonished beholder. No person ever beheld this wonderful system for the first time without a burst of admiration. When we connect with the personal inspection of the Saturnian system the facts with reference to its mysterious arrangements, the stability of these two immense flat rings, some two hundred thousand miles in diameter, upon

the exterior, separated from each other, and from the body of the planet, each revolving about the same axis on which the planet rolls, and with a velocity a thousand fold greater than the speed with which the parts of the earth's equator are carried by its diurnal rotation; when we imagine the diversified scenery which is presented by these rings, and by the moons, some rising, some setting, others waxing or waning, some going into or coming out from an eclipse, their vast proportions, the rapidity of their motions and changes, — the mind is overwhelmed in wonder and astonishment.

We lingered in this enchanted spot until far into the night, no less charmed with the courtesy of our host, than with the exquisite treat which he had furnished for our gratification. We took our leave, and made our way back to the city. Unlike the great metropolis of England, quiet had settled calmly upon the sleeping city, and the echo of our carriage-wheels was the only sound which broke in upon the ear of night.

I shall not attempt to narrate in order the matters of interest which occurred during my short stay in the capital of Bavaria. On the following day, Dr. Lamont met me at my hotel by appointment, to visit the various manufactories of astronomical instruments. In inspecting the object-glasses at the optical institute of Fraunhofer, the one which had been fully tested came up for examination. Being of the same size as the one used in the equatorial tube of the Royal Observatory, Dr. Lamont had used it for several months, and pronounced it to be superior to any one of the same dimensions he had ever seen. It had been applied to all the test objects in the heavens, and performed in a most admirable manner, and indeed the doctor had detected with this glass some stellar points in the great nebulae of Orion, never before seen by mortal eye. This was the glass in search of which I had traversed the ocean and the land. True, its magnitude and power were beyond anything I had dared to hope or anticipate; and what was a matter of far greater importance, the price was nine thousand dollars, and of course far beyond the sum which had been raised previous to my departure from home.

I looked at other and smaller glasses, but I constantly came back to the Great Refractor, and finally resolved that this glass was the only one which could satisfy the desires of those of whose interests and wishes I was then the representative. But to contract was impossible, for I had not the power. All that I could do was to make a conditional arrangement, and to secure a sort of half promise from Mr. Mertz, that the glass should not be sold until I could be heard from after my return to the city of Cincinnati.

The details were soon arranged, and conditional terms fixed for two other smaller sizes. In the evening I again visited the observatory in company with the astronomer Dr. Lamont. Here as in Paris I received a polite invitation to enter the observatory as a student, but all the books and records being in the German language, with which I was not familiar, I determined after some hesitation to return to England, and secure, if possible, the advantages of a practical training in the Royal Observatory at Greenwich.

I had now closed up the business, which had led me so far into the heart of Germany. I would gladly have lingered for weeks in this beautiful city, but the nature of my engagements on the other side of the waters required me to move with all the dispatch possible. I therefore gathered together the various plans, drawings, papers, and books, which had been presented to me, and prepared to commence a journey the terminus of which was no longer unknown. Home lay at the farther extremity.

XVIII.

THE RUDIMENTS.

LONDON, *August 20, 1842.*

So far back towards home. Munich, Stuttgart, Heidelberg, Manheim, Mayence, Bingen, Coblantz, Bonn, Cologne, Aix, Liege, Brussels, Ghent, Ostend, London.

Thus runs the record of the journey from Munich to London, or rather the notes, for the record was never written. These notes, and a few letters, mere mile-posts, are all that remain to tell of the stay in London, and the trip home. Yet they are so pointed, that one scarcely misses the more elaborate account which would be expected.

Professor Mitchel now had but one work to accomplish before returning home. This was to acquire sufficient technical knowledge of instrumental astronomy to enable him to begin work when his observatory should be finished, and his instruments mounted at Cincinnati. He greatly desired to gain admission for a brief season to the Royal Observatory at Greenwich.

The following letter, written to Mrs. Mitchel the day after his arrival at London, can hardly fail to touch a sympathetic chord in the heart of one who has long been separated from home.

LONDON, *August 21, 1842.*

Here I am alone in a small back chamber, third story, in the West End of London. I have just dined, and it

being Sunday, I have retired to my solitary room to spend an hour with my sweet wife and dear children. I am on my return, and through the kind protection of our Father in Heaven, have been blessed with comparative health and comfort, so far as the last can be enjoyed by a wanderer from home, and all that the heart holds dear. How grateful I was when I felt my face turned once again towards the West! For more than two months, and over a distance of more than five thousand miles, as the sun rose in the morning, it invariably lighted the road I was going to travel; now when he sets he flings his parting ray full in my face, and seems to cheer me on where his lovely beams are still lingering around my home and household gods. Dearest wife, how happy and grateful I shall be, should God in his providence again permit me to fold you in my arms, to clasp my dear children to my bosom, and feel that I am again surrounded by those who love me. Talk not to me of the pleasures of travelling. What are the mighty wonders of London; what the joy, frivolity, and gorgeous splendor of Paris; what the bright lakes and mountain-tops of independent Switzerland, or the gay scenes of sport and pleasure which crowd the continental metropoli? Alas! I was alone, in the midst of thousands; a dreary solitude reigned around me. There were merry faces and laughter, and music and the joyous dance; but what was all that to me? Could I sympathize with their feelings, as I gazed listlessly on the bright throng that floated heedlessly round me? Could I dream for one moment that I excited even a transitory interest in one of the thousands who paused to catch a glimpse of the stranger? No, I was alone. When I met the little child upon the street, weeping bitterly because his older and stronger playmate had deserted him or outstripped him, then I could feel, I could stop and whisper a word of comfort in the ear of the poor little fellow, and dry his tears with a silver groschen. This I could do and feel, because I thought of my own far distant home, and my dear little ones, their joys and sorrows, and how much I could love a stranger who could remember and comfort them in my absence.

If pleasure were the only object, or even any object of my search in this distant journey, I am sadly disappointed; not that I have not been kindly treated, not that every attention has not been shown me, but simply and solely that absence from home severs me from happiness.

And how are the dear little ones? I cannot pass a pretty little boy on the street or in any of the many parks without wishing to clasp him in my arms. Should we be permitted again to meet, I wonder if anything can induce us to so far forget our mutual happiness as to differ seriously ever while we live. No; you may do as you please, and you shall do as you please, for I hope and trust that we will be led to please each other. I have a sweet little present for you, selected by myself in a beautiful shop in Munich; I know you will like it. And for the little girls and boys I have purchased some keepsakes characteristic of the places where they were bought.

God bless and keep you and my dear children safely and securely in the arms of his love, and grant that we may again meet in health and happiness, and I am sure you will all join me in rendering Him a full tribute of grateful and heartfelt thanks.

The following are extracts from notes.

SUNDAY, 21 Aug., 1842.

Rose at half-past seven with a severe headache. Breakfasted at nine o'clock. Went to church at half-past ten. Old church, bad music, queer arrangement, long service, but a good sermon well delivered. A prayer for prosperity. More like Christian country than anything I have seen for a long time.

Afternoon. Long walk down Charlotte Street to Oxford, down Oxford to Regent, down Regent to Waterloo Place. Crossed Pall Mall and entered St. James' Park. Methodist preacher; swarms of people. Passed on to Green Park, thence along Piccadilly to Hyde Park. Sauntered along Serpentine River. Equipages, ladies. Sat down near two Frenchmen. Accosted an English-

man, an old *compagnon du voyage*. Sauntered on with the crowd. Pretty flower-garden, goldfish, goat carriages. Return by Oxford Street, home; must have walked six or eight miles. Did not see any beautiful faces; all out of town, at least so they tell me.

Monday. Rose at half-past five. Read till breakfast. To Greenwich, saw Airy. Call to-morrow at eleven A. M. Back again. Home, tired and outrageously hungry.

Tuesday. Queer dream last night. All about wife and wains. Met on yesterday poor woman, several little children. Saw one of them, a little girl about five years old, pick up from the street a small piece of dirty bread with a much seeming joy, as if she had found a treasure. I turned round and said, "My little girl, have you no bread at home?" "No, sir, not any. Nothing to eat but two or three potatoes." I gave her some money and bade her buy a good supper. God help the starving!

Went to Greenwich at ten. Saw Mr. Airy. Says that a "transit circle" is the best for me. Goes in for the sliding roof for the observatory; but opposes the Frauenhofer mounting. Advised me to come to Cambridge, where I am now writing (with leadpencil), to see the mounting of the twenty-foot equatorial by himself. Reached Cambridge at half-past eight o'clock. Took a fly and went to the observatory, two miles out. Pretty road. Rang, and was ushered into Mrs. Challis' parlor. Pleasant lady. Remembered Bartlett well. Professor, little man, — *c'est comme ça*, — but polite, and no doubt clever. Showed me the equatorial. Immense stone foundation. Iron caps bolted to the stone, movable iron plate.

Came to the Eagle. Boots booked me for London by the mail twelve o'clock. Back to London coach by half-past six.

Wednesday. To Greenwich. Airy out as usual. Airy returned. Long talk about the mounting. Invited to dine. Mrs. Airy proposed to her husband to take me as an assistant. Accepted, and I agree to be present at nine o'clock next day to commence. Sheepshanks and Bailey came in. Fine fellows all. Went back to London with Sheepshanks.

He thus describes the attainment of his wish to enter the observatory as a student, to his wife : —

I have been permitted to attain the darling object of my hopes. Think of it, dear wife, I am now an assistant to the Astronomer Royal : his pupil, and he a kind, attentive, and most courteous instructor. This I owe to his most excellent wife. Ay, to a lady. I was invited to dine with the Astronomer Royal, and during dinner was expressing my mortification at my utter ignorance of the practical details of a well-regulated observatory, in conversation with Mrs. Airy. She immediately and with a woman's sagacity and delicate tact saw what I wanted, and asked of her husband that I might be placed in the observatory as an assistant, and that he would become my guide and instructor. The boon was readily and most courteously granted (who could refuse such a lady?), and at nine o'clock next morning I was duly introduced to the interior of the computing room, where I have been since assiduously engaged. I have left my mark in the great books of the observatory, — books which will go down to posterity, if my name does not. There are my computations. And when the Greenwich observations are published for 1842, I hope to show you what I did with my own hand.

Thursday, 25th. Rose at six. Breakfasted at half-past seven, paid bill, and made for Greenwich. Lodging at the Metre. At the observatory. Commenced work by correcting transit observations and reducing to the mean centre wire, in observation in which all the wires are observed. Second, to get the exact time of passing the imaginary centre wire when some wires are omitted. Corrections for omitted wires. Examined clock-work and took notes thereon. Returned to the Metre at half-past four P. M. Dined, and then by railway to London. Returned to Metre. Drew the clock-work and described the same. Read Airy's report.

Friday morning. Disagreeable company during the night. Retreat to other floor. Cold and miserable. Arose

Our own native shore was before and around us bathed in sweet moonlight, and the air we breathed seemed perfumed with spring odors. No one who has not experienced the sensation can possibly imagine the excitement of returning to one's native country after a long absence. The ship had been telegraphed at six P. M., and as we approached the quarantine she sent up signal rockets, lighted fireballs at the prow, and finally she opened a six-pounder, which sent the intelligence of our near approach booming over the calm and moonlit wave. At nine P. M. the surgeon came on board. At ten we were opposite the Battery, and at twelve I was safely ensconced at Cozzen's American Hotel.

A week after, the traveller leaped from a coach into the embrace of wife and children.

XIX.

THE FIRST WATCH-TOWER.

ONE who has thus far followed the young professor in his efforts may suppose that the work was in a fair way of completion. It was barely begun. Let us take a look at the situation as he found it on reaching Cincinnati in the fall of 1842. Seventy-five hundred dollars had been subscribed by people of all kinds of occupation, in small sums, the majority, possibly, little dreaming that the enterprise would take shape, and that they would ever be called on for payment. One thousand dollars had been collected and appropriated for the trip of the agent of the Astronomical Society abroad. A telescope had been contracted for at a cost of ninety-five hundred dollars. A lot must be procured on which to erect a building for an observatory, and some six thousand dollars would be the lowest estimated cost for its erection.

The arrangement with Merz, of Munich, was a payment of one third cash, and the balance when the telescope should be shipped. The first sum to be paid was some three thousand dollars. To raise this money Professor Mitchel at once set himself to work, and by the following November transmitted an order with the first payment for the instrument through Dr. Lamont, of Munich. But in the mean time the Naval Observatory at Washington had taken shape, and Cincinnati came very near being too late. Dr. Lamont replied:—

hood, and advised him to look a little nearer to the earth. This called forth a postscript from the Munich astronomer to the last letter quoted, which is an amusing change from telescopes to matrimony.

P. S. On receiving your letter strongly recommending me to become a married man, I immediately made some inquiries with a view to fulfilling that condition which you consider so essential for deserving the name of philosopher, but to my utmost regret I was soon convinced that no lady can be found in this country who thinks it a sin to dance on a Sunday or to go to the theatre on a Sunday evening. Now, being a good Christian, I find it against my conscience, under these circumstances, to enter the happy state, however attractive in other respects. Though I have failed in the matrimonial business, I think I have been rather fortunate in magnetic investigations, and have lately attained some results, of which I shall give you an account in another letter.

The account of the work at Cincinnati is continued from a periodical called the "*Sidereal Messenger*," published by Professor Mitchel several years after, and referred to later on in these pages.

The contract having been made conditionally in July, 1842, it was believed that the great refractor would be shipped for the United States in June, 1844, and to meet our engagements the sum of six thousand five hundred dollars must be raised.

This amount was subscribed, but, in consequence of commercial difficulties, all efforts hitherto made to collect it had been unavailing, and in February, 1844, the Board of Control solicited the Director of the Observatory to become the general agent of the society, and to collect all old subscriptions and obtain such new ones as might be necessary to make up the requisite sum. The accounts in the hands of the previous collector were accordingly turned over to me, and a systematic effort was made to close them up. A regular journal was kept of each day's work, noting the

number of hours employed, the persons visited, those actually found, the sums collected, the promises to pay, the positive repudiations, the due bills taken, payable in cash and trade, and the day on which I was *requested to call again*. These intervals extended from a week or ten days to four months. The hour was in general fixed, and when the day rolled round, and the hour arrived, the agent of the society presented himself, and referred to the memoranda. In many cases another and another time was appointed, until, in some instances, almost as many calls were made as there were dollars due.

By systematic perseverance, at the end of some forty days the sum of three thousand dollars was paid over to the treasurer as the amount collected from old subscribers. Nearly two thousand dollars of due bills had been taken, payable in carpenter's work, painting, dry-goods, boots and shoes, hats and caps, plastering, bricklaying, blacksmith's work, paints and oils, groceries, pork-barrels, flour, bacon and lard, hardware, iron, nails, etc.; in short, in every variety of trade, materials, and workmanship. The due bills in cash brought about five hundred dollars, and a further sum of three thousand dollars was required for the last remittance to Europe.

It was determined to raise this amount in large sums from wealthy and liberal citizens who had already become members of our society. On paper the exact amount was made up in the simplest and most expeditious manner; eight names had the sum of two hundred dollars opposite them, ten names were marked one hundred dollars each, and the remaining ones fifty dollars each. Such was the singular accuracy in the calculation, that, when the theory was reduced to practice, it failed in but one instance.

At a meeting held in May by the Board of Control, the treasurer reported that the entire amount was now in the treasury, with the exception of one hundred and fifty dollars. The Board adjourned to meet on the same day of the following week, when the deficiency was reduced by the agent to twenty-five dollars, and on the same day an order was passed to remit the entire amount to the Bar-

ings & Brothers, London, to be paid to the manufacturer on the order of Dr. J. Lamont, of Munich, to be given on the packing of the instrument. The last twenty-five dollars were obtained, and placed in the treasurer's hands, immediately on the adjournment of the Board. Thus was completed, as it was supposed, by far the most difficult part of the enterprise. All the cash means of the society had now been exhausted, about eleven thousand dollars had been raised, and to extend the effort yet further, under the circumstances, seemed to be quite impossible.

It now became necessary for Professor Mitchel to turn his attention to procuring a site on which to erect the observatory building. A large hill, some four hundred or five hundred feet high, lay just without the limits of the city, on the east. This property was owned by Mr. Nicholas Longworth, afterwards known as the great millionaire of the West. Mr. Longworth consented to give this property to the Astronomical Society, but being of a practical turn of mind, and undoubtedly not feeling much confidence in so utopian a plan, he stipulated in the title-deed that, in case the property should ever cease to be used for astronomical purposes, it should revert to its donor or his heirs.

Professor Mitchel enclosed the grounds and commenced his preparations for the erection of the building. He was obliged to make a road up the steep side of the hill, in itself no small undertaking, before the property could be made accessible. However, he succeeded in this, and in making the excavations and getting his foundations in during the summer of 1843.

XX.

CORNER-STONE.

MITCHEL'S experience with Mr. John Quincy Adams, when passing through Washington on his trip to Europe, had been so gratifying, and he had conceived so great an admiration for the venerable ex-President, both from the treatment he had received on that occasion and from Mr. Adams's early efforts in behalf of astronomical science, that he resolved to try to induce him to become the orator on the occasion of the laying of the corner-stone of the observatory. He laid his plans before the Astronomical Society, a resolution was passed inviting Mr. Adams to deliver the inaugural address, and nothing remained but to induce him to accept.

Armed with a copy of this resolution and a letter from the president of the Astronomical Society, Judge Burnet, Mitchel took a coach and started east to find Mr. Adams, and present the invitation in person. Learning that Mr. Adams was at Niagara spending a brief summer season with his family, Mitchel proceeded there, and as he had expected found the man he sought, surrounded by hosts of friends and relatives. Mr. Adams was getting very old and feeble, and it was not to be expected that he would consent, or that his family would permit him to make so long a journey in a stage-coach for any purpose whatever.

On the morning of his arrival at Niagara, in company with a gentleman who had agreed to pilot him, Mitchel started out to seek for the ex-President. He found him standing on the brink of the turbulent waters. It was not long before the astronomer was putting his persuasive tongue to one of the severest tests ever required of it. He afterwards wrote a full account of this interview. Only a portion of a copy made nearly fifty years ago remains.

I referred to the testimonials of interest in our behalf which had been received from distinguished individuals abroad. I spoke of the beauty of the site which had been donated for the observatory, crowning, as it does, the summit of one of the beautiful hills which surround our city, of the magnificent view, embracing the entire city, and "La Belle Rivière" winding its way in the far distance, among the graceful heights, which descend to its waters. I then referred to the design of the building, of its beauty and convenience, and of the rapidity with which the amount necessary for its erection had been subscribed. I spoke of the eager interest with which we all looked forward to the interesting ceremony of laying the corner-stone; "and now, sir," said I, looking the venerable man full in the eye, "I am the bearer of an invitation to a distinguished individual to deliver the oration on that occasion. I left my home with no other object in view, and expected to have been obliged to travel a thousand miles to accomplish my mission. But, fortunately, I have been spared half my journey by the accidental circumstances which have thrown me in your company. You, sir, are the only person in the Union who can lay the corner-stone of our observatory."

Mr. Adams started. "What," said he, "it is not possible you have selected me?"

"Yes, sir," I replied, "you have been solicited for many reasons;" and here I urged the claims of the great West upon a share of his personal attention. I spoke of the signal services which his illustrious father had rendered to

our Western world, of his own powerful efforts in our behalf; of the importance of the success of this first leading enterprise; of what had already been done, and of what remained to be accomplished.

Mr. Adams listened to me patiently until I had finished. "Sir," said he, "if I were to follow the impulse of my present feelings I would unhesitatingly answer, 'Yes, I will go at the risk of my life,' for God knows that if I could be spared to participate in so interesting a ceremony, one that I have feared I should never witness, I would be willing to die the next. My hopes would be more than realized, and the toil of twenty years fully repaid. But," he added, "I am old, verging toward seventy-seven, and I feel the hand of decay working fearfully upon my body, and, as my enemies say, upon my mind. I am averse to everything like show or parade, and even now find myself more pained than pleased with a thousand civilities I know are meant in the kindest possible sense. I have been persuaded to make this journey for the benefit of my health, and hoped that I might have been permitted to do it in peace and quiet. Yet it is difficult to refuse warm-hearted courtesies. Here I am with my children and friends, with whom I would gladly remain. But here comes a messenger from General Porter, with whom I have promised to pass the night, and I presume he is growing impatient."

At this moment the gentleman who had introduced me, stepped up and informed the ex-President that his host was waiting for him. Mr. Adams introduced me to his party, and invited me to join them on the following day in an excursion to the Canada shore. This invitation I accepted, and finding that the gentlemen of the party were all much older than myself, I offered to conduct Mr. Adams to his quarters at General Porter's. He accepted my services, and at once resumed the conversation.

He expressed the deepest possible interest in our plans and prospects, adverted to the extraordinary change that had taken place in the West within his recollection, and of his strong desire to see this wonderful country. But the length of the journey, his impaired constitution, his

advanced age, the exhaustive influence of high excitement, all these seemed almost to forbid the hope that he could accept the invitation ; while, on the other hand, the hope that he might be instrumental in bringing to a successful termination so important an effort, and one destined to exert such powerful influences, seemed to make it impossible to decline. As we entered the gateway, he said :

“ I cannot refuse you to-night. I will reflect on it. I will counsel with some of my friends ; to-morrow we meet again, and then we will see what is best to be done.”

As we separated I handed him the letters, which up to this time had remained in my pocket. I bade the ex-President good-night, and returned to my room in the Cataract House, in a state of excitement more easily imagined than described. For nearly two hours I had been struggling for the highest prize at which I had ever grasped, and what might yet be the result no one could divine.

Mr. Adams found himself between two fires : his daughters, on the one hand, and the ardent young astronomer, on the other. He doubtless remembered the jeers with which his own efforts in endeavoring to establish an observatory by aid of the government of the United States, had been received, and thought with pride of standing before the country as the orator on the occasion of inaugurating an institution founded by the people. These considerations, the interest he naturally took in the work, triumphed, and he consented to deliver the oration.

Before leaving for Cincinnati for the accomplishment of the purpose for which he was invited, Mr. Adams, then in Congress, addressed his constituents, giving his reasons for withdrawing himself temporarily from their service. In this address he made use of the following language : —

Let me then indulge the hope that I do not deceive myself by the belief that, in accepting this invitation personally so honorable to me, all my gratitude is due to the distinguished citizens and excellent society by which it is tendered ; but that in undertaking this journey at this season of the year and at this period of my life, for the solitary purpose of laying in a far distant State the corner-stone of an edifice devoted to the cause of science, I am still discharging a duty in your service ; and if, in after-time, from the summit of that edifice, the light of a clearer vision and deeper insight into the works of creation shall be shed upon the race of man, may the memory of your children be for one moment reminded that in the dedication of that building *your representative* took a part, and that in departing for its performance he was cheered by the smile of your approbation, and sped on his way by your good wishes and prayers, that the service may be successfully performed.

The 9th of November, 1843, was a gala day at Cincinnati. The advent of so illustrious a man as John Quincy Adams was a signal for the turning out of its citizens. The day unfortunately proved unpropitious. In a rain storm the members of the Astronomical Society marched up the side of the hill, which had been named in honor of the orator of the day, and there listened to the last great oration Mr. Adams ever delivered. Judge Burnet introduced the orator, who minutely traced to his auditors the progress of astronomical science from that remote period when the constellations were fashioned into the shape of animals or men to the period in which he spoke. At the close of his oration he advanced to the corner-stone and, after briefly picturing institutions of other kinds already built, the changes that had recently come over the country, he concluded:—

In the midst of the delight with which your hearts will expand at the contemplation of this cheering view, does the love of the arts and sciences, of civilization, which are spreading this enchanting scene before you, prompt the inquiry, whether among these monuments of civilized industry, perseverance, ingenuity, there is one lighthouse of the skies, one tower erected on the bosom of the earth, to enable the keen-eyed observer of the heavenly vault and the profound calculator of the infinite series, to watch from night to night through the circling year the movements of the starry heavens and their unnumbered worlds, and report to you and the civilized race of men the discoveries yet to be revealed to the tireless and penetrating eye of human curiosity? Look around you, fellow-citizens. Look from the St. John to the Sabine. Look from the Neversink to the mouth of the Columbia, and you will find, not one! not one! or, if one, not of our erection, but from funds liberally poured out from the coffers of that motherland from whom our fathers have decreed an eternal separation.

Fellow-citizens! The Astronomical Society of Cincinnati have determined to wipe the reproach from the fair fame of our beloved country. Here, upon this spot, they have determined shall arise an edifice devoted to the cultivation and advancement of the science of astronomy, devoted to a skilful and persevering search into the laws of the physical creation. For the execution of this purpose they have done me the honor to invite me from a distance of a thousand miles to come and share with them the office of laying the corner-stone of that edifice. And for the performance of that service we are now assembled. Let us proceed then so to do; and here in the presence of the vast multitude of the free citizens of the United States of America, of the State of Ohio and the city of Cincinnati, I do lay this corner-stone. . . .

XXI.

FINISHED AND EQUIPPED.

WORK on the building was suspended during the winter, but was resumed early the following spring. The account is continued from the source mentioned in a former chapter.

Some two or three thousand dollars had been subscribed, payable in work and materials. Owing to a slight change in the plan of the building, the foundation walls, already laid in the fall of 1843, were taken up and relaid. Finding it quite impossible to induce any master workman to take the contract for the building with the many contingencies by which our affairs were surrounded, I determined to hire workmen by the day, and superintend the erection of the building personally. In attempting to contract for the delivery of brick on the summit of Mount Adams, such an enormous price was demanded for the hauling, in consequence of the steepness of the hill, that all idea of a brick building was at once abandoned, and it was determined to build of limestone, an abundant supply of which could be had on the grounds of the society, by quarrying. Having matured my plans, securing the occasional assistance of a carpenter, about the beginning of June, 1844, I hired two masons, one of whom was to receive an extra sum for hiring the hands, keeping their time, and acting as the master workman. One tender to these workmen constituted the entire force with which I commenced the erection of a building, which if prosecuted in the same humble manner, would have required about twenty years for its completion. And yet our title-bond required that the building should be finished in the following June, or a forfeiture of the title

by which we hold the present beautiful site must follow. My master mason seemed quite confounded when told that he must commence work with such a force. In the outset, difficulties were thick and obstinate. Exorbitant charges were made for delivering lime. I at once commenced the building of a lime kiln, and in a few days had the satisfaction of seeing it well filled and on fire; true, it caved in once or twice, with other little accidents, but a full supply of lime was obtained, and at a cheap rate.

Sand was the next item, for which the most extravagant charges were made. I found this so ruinous that an effort was made, and finally I obtained permission to open a sand pit, which had long been closed for fear of caving down a house, on the side of the hill above, by further excavation. An absolute refusal was at first given, but systematic perseverance again succeeded, and the pit was reopened. The distance was comparatively short, but the price of mere hauling was so great that I was forced to purchase horses, and in not a few instances fill the carts with my own hands, and actually drive them to the top of the hill, thus demonstrating practically how many loads could be fairly made in a day.

Another difficulty yet remained — no water could be found nearer than the foot of the hill, half a mile distant, and to haul all the water so great a distance would have cost a large sum. I selected one of the deepest ravines on the hilltop, and throwing a dam across, while it was actually raining, I had the pleasure of seeing it fill rapidly from the hillsides, and in this way an abundant supply was obtained for the mixing of mortar, at a very moderate expense of hauling.

Thus prepared, the building was commenced, with two masons and one tender during the first week. At the close of the week I had raised sufficient funds to pay off my hands, and directed the foreman to employ for the following week two additional masons and a tender. To supply this force with materials several hands were employed in the quarry, in the lime kiln, and in the sand pit, all of whom were hired by the day, to be paid half cash and the

balance in trade. During all this time, I may remark that I was discharging my duties as Professor of Mathematics and Philosophy in the Cincinnati College, and teaching five hours in each day. Before eight o'clock in the morning I had visited all my workmen in the building, in the lime kiln, sand pit, and stone quarry; — at that hour my duties in the college commenced, and closed at one. By two o'clock P. M. I was again with my workmen, or engaged in raising the means of paying them on Saturday night. The third week the number of hands was again doubled, the fourth week produced a like increase, until finally not less than fifty day laborers were actually engaged in the erection of the Cincinnati Observatory. Each Saturday night exhausted all my funds; but I commenced the next week in the full confidence that industry and perseverance would work out their legitimate results. To raise the cash means required was the great difficulty. I frequently made four or five trades to turn my due bills, payable in trade, into cash. I not unfrequently went to individuals and sold them their own due bills payable in merchandise, for cash, by making a discount. The pork merchants paid me cash for my due bills, payable in barrels and lard kegs; and in this way I managed to obtain sufficient cash means to prosecute the work vigorously during the months of July and August; and in September I had the satisfaction to see the building up and covered, without having incurred one dollar of debt. At one period, I presume, one hundred hands were employed at the same time in the prosecution of the work; more than fifty hands on the hill, and as many in the city in the various workshops, paying their subscriptions by work for different parts of the building. The doors were in the hands of one carpenter, the window-frames in those of another; a third was employed on the sash; a painter took them from the joiner, and in turn delivered them to a glazier; while a carpenter paid his stock by hanging them, with weights purchased by stock, and with cords obtained in the same way. Many locks were furnished by our own townsmen in payment of their subscriptions. Lumber, sawing, flooring, roofing, painting,

mantels, steps, hearths, hardware, lathing, doors, windows, glass, and painting, were in like manner obtained. At the beginning of each week my master carpenter generally gave me a bill of lumber and materials wanted during the week. In case they had not been already subscribed, the stock book was resorted to, and there was no relaxing of effort until the necessary articles were obtained. If a tier of joists were wanted, the saw-mills were visited, and in some instances the joists for the same floor came from two or three different mills.

On covering the building, the great crowd of hands, employed as masons, tenders, lime-burners, quarry-men, sand and water men, were paid off and discharged;¹ and it now seemed that the heavy pressure was passed, and that one might again breathe free, after the responsibility of such heavy weekly payments was removed.

The observatory building was modelled after the one at Munich. The roof rolled to one side, on a track propelled by means of ropes, and wound around a drum turned by means of cogwheels and a crank. This method of exposing the heavens, in later observatories gave place to the turret or the dome, revolving on cannon-balls or on wheels, and having a convenient slit closed by a shutter which could be opened or closed at will. The dome is now almost universally used.

Meanwhile Dr. Lamont reported progress upon the telescope being finished at Munich.

MUNICH, *July 29, 1844.*

MY DEAR SIR: I have just received your letter of June 18th, and see by it that my letter of April 9th had not reached you then. This is most disagreeable, as from

¹ It was found impossible to complete the building soon enough to receive the telescope on its arrival, without incurring some debt. Professor Mitchel therefore was compelled to draw on his private means, which were slender enough.

not having received an answer you might have been led not only to accuse me of great negligence, but also to suppose that I take less interest now in the observatory of Cincinnati than I did from the commencement; which I assure you is not the case.

At Mr. Merz's establishment they are just now occupied in polishing the different parts of your refractor. The instrument will be packed by the end of August. It is furnished exactly with the same means for taking observations which have been used by M. Struve. I have ordered no other kind of micrometer for you but Froenhofer's 1° , because M. Merz has never constructed any other.

We have now a new comet. I have observed it on two nights. When the refractor is sent off I will write you again, and give you some directions about the mounting.

Believe me, my dear sir,

Yours most sincerely,

LAMONT.

When the telescope came from Europe, in February, 1845, its parts were packed in separate boxes, carefully marked, with full instructions for putting them together. Nevertheless it required some natural mechanical skill to join these parts properly. It must, of course, be solidly mounted. First came the stone pier, some ten feet square, built from below the surface of the soil to the observing-room. On that rested a single stone about eight feet high, broad at the base, and sloping to the top. On this rested a metal slab, to which the pivot machinery of the telescope was attached. Professor Mitchel completed his task successfully, and had the satisfaction of seeing the instrument rest firmly on its pedestal, and so delicately balanced that a child could easily move it, pointing it at different objects in the heavens. When the equatorial was mounted at Cincinnati in 1845, it was, with one exception (the equatorial at Pultowa), the finest refracting telescope in the world.

There have been few if any equatorials mounted in this country so graceful in appearance as the one mounted at Mount Adams.¹ Every feature was perfect. The workmanship was finished; the parts blended together harmoniously; the whole, when put together on the top of the stone column cut for the purpose, was certainly as graceful in its proportions as any piece of work of the kind ever constructed.

¹ So great has been the improvement in these instruments since the mounting of the Cincinnati equatorial, that a description would seem out of date.

XXII.

LECTURES. — RECOMMENDATIONS.

ONE of the main objections brought against the plan of erecting an observatory in Cincinnati was that when finished it would still be without any endowment, and there would be no income to support it. In order to meet this objection, Professor Mitchel pledged himself to sustain the observatory free of expense to the Astronomical Society for ten years, provided no means for its support were otherwise forthcoming. To do this he relied on a salary he was receiving from the Cincinnati College of about two thousand dollars.

While engaged in finishing the work on the building he received the severest check of the many by which he had been met since the inception of the enterprise. The building known as the Cincinnati College took fire and burned to the ground. Within a few hours every dollar of his income was cut off.

To abandon the observatory was not to be considered. Yet something must be done to furnish a livelihood. Another professorship could not be had. He had been eminently successful in his astronomical lectures in a limited field. Could he sustain himself in communities where he was not known? The lecture season was in the winter, when observations were most difficult and liable to interruptions from clouds. If he could replace his lost income by this

means, and at this season, he would have all the rest of the year to devote to the observatory. He determined to try it.

He often told how he went to Boston, young and unknown in the field of science, a field which even then in the Athens of America had but a limited number of votaries, and *they* likely to be rather competitors than listeners. He advertised that O. M. Mitchel would lecture on a certain night at Tremont Temple. The act was as audacious as his attempt to build an observatory in the wild West. But he believed that if he could not charm Boston he could not charm any community, and he made up his mind to succeed then and there or not at all.

On the night of the lecture, taking Mrs. Mitchel on his arm (he never attempted any move without her if he could help it), they proceeded through a drizzling rain to the hall in which he was to lecture. As they approached, not a soul could be seen going in. The wind soughed, the street lamps flickered, and the rain fell; and the two, thinking alike of children at home to be fed and an observatory to be conducted, felt their hearts sink to the lowest ebb. But when the tide turned in the man's breast, it turned with a rushing as of great waters. They had walked past the hall to the corner, not having the heart to enter. Then, suddenly summoning all his forces, he swung about, walked back quickly to the door, marched up to the pulpit, and delivered to an audience of about one hundred people one of the most brilliant lectures he ever gave.

When he had finished, scarcely a person left the house. All gathered round him and promised that in future he should never want for an audience in

Boston. From that time forward the throngs that gathered to hear him increased with every lecture. He never forgot this kind reception of Bostonians, and afterwards often referred to his success there as one of the pleasantest as well as the most welcome of his triumphs.

At one of these lectures, a gentleman from Brooklyn, then on a visit to Boston, Mr. Joseph Ripley, sat in the audience. Being a cultivated man, he was naturally attracted by the subject, and was especially delighted with the way Professor Mitchel handled it. He made the lecturer's acquaintance, and there sprang up a friendship which death only terminated.

Professor Mitchel soon after lectured in New York, but found it more difficult to secure an audience. He went back to Cincinnati, a good deal disappointed. Soon after he received a letter from his new acquaintance, Mr. Ripley, asking him if he would consent to lecture in Brooklyn. Professor Mitchel, not having been encouraged with the result of his effort in New York, declined. Mr. Ripley persisted, promising to pave the way, and was so urgent in his entreaty that Professor Mitchel at last wrote him: "I will lecture in Brooklyn, if only Ripley and his wife come to hear me." Mr. Ripley made good his word. The more intellectual circles of Brooklyn were notified of the course, and the lecturer had the satisfaction of addressing fine audiences.

Professor Mitchel spoke extemporaneously and without notes. He soon abandoned the contrivance that he had manufactured with which to give representations of telescopic views of the heavenly bodies. Nor did he use diagrams or charts. He relied solely

on his own ingenuity of illustration by language. He would begin to speak in an easy and dignified manner, soon dropping into a colloquial style suited to the lecture-room. His imagination was rich in crystal globes, threads of light, spirals, and many such means of illustration of which the mind can readily conceive, and from these he would artfully lead his auditors in among worlds and orbits of worlds till they would grasp, or fancy that they grasped, the greater in the vivid picture of the less.

At times flights of eloquence would come to him; it seemed from out the heavenly hosts, so grand was the inspiration. Starting from the earth, he would wheel away with his hearers far into space, taking them from earth to sun, from sun to system, from system to universe, till it seemed that he had left the earth a mere speck behind them. Then there would come a sort of dread that the small figure standing on the rostrum could never lead them back. Yet when the uttermost point had been reached, as a bird stretches its wings and sails in gently inclining circles downward, he would descend to the hall from whence he started. Then, when the spell was loosed, one might hear a sigh of relief throughout the audience.

Having established an observatory in America, and feeling that the query might suggest itself to numbers of those whom he had induced to contribute for the purpose, "What is it all for, after all?" Professor Mitchel asked Mr. Airy to write out a brief statement of an observatory's uses. Mr. Airy's reply was written in November, 1842. A summary of it is as follows:—

There is no one branch of science which unites or combines almost all the others in so remarkable a degree as astronomy. Geology, the properties of the atmosphere, optics, and even chemistry and meteorology in combination with some of these, all receive light from or throw light upon some of the observations or theories of astronomy.¹

An observatory has always been a primary point of reference for accurate geography.

An observatory under proper conduct has always been the headquarters of the science of the country in which it stands.

A single view through a large telescope will produce an impression which a long study of printed descriptions would fail to produce. The thing scrutinized is seen to be real; to have some peculiarities which no verbal description or drawing can present, and, in a word, is seen to be wonderful. I should think that the habits of American citizens, and the circumstances under which the funds of the observatory have been raised, would render it probable that the utility of the observatory in this way may be very extensive. And if the taste for astronomical observation in this general way shall become widely spread, it will soon be followed by a taste for other sciences.

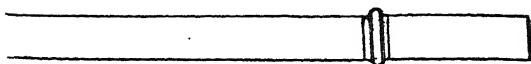
The immediate astronomical uses of the observatory will be the same as those of other observatories in some of their classes of observation; but the principal uses as conducing to general astronomical advance will be in those matters in which your geographical position gives you the command of phenomena, either not seen in Europe or the Cape of Good Hope, or seen under very different circumstances. Solar eclipses are seen by you which are not seen by us. The same eclipses may be seen somewhat earlier by you than by us, and the small difference of time may give the means of elucidating some of the strange appearances observed in the last eclipse. Many occultations, many phenomena of Jupiter's satellites, etc., which are lost in this country, will be caught by you.

¹ Since this was written, chemistry and astronomy have become more closely allied by the spectroscope.

Dr. Lamont wrote his com-
kindly interest which had cl-
first meeting with Professor

I congratulate you most heartily
pishment of the difficult task you
are probably at this moment
superb comet which Heaven has
ing your telescope. I was the
to see this comet. I discovered
o'clock on the evening of the 7th
the same evening, somewhat late
culate its orbit? For this purpose
you the method of Olbers. The
is to be found in Encke's *Jahrbuch*
this work; if not, I think you
If you want to calculate the ellipse
Olbers' method will not do. You
Motus Corporum Cælestium. I
excellent work, Pontécoulant's
Monde. The work is not yet complete
tions and analytical methods are
of Laplace.

I suppose you have by this time
observing with the telescope, for
become perfectly acquainted with
of the instrument. To read the
and the turns of the screw you need
magnifying about three or four times
find it extremely difficult at first
some positions of the micrometer
the screw; but it will become easier
tised for some time. To protect the
condensation of vapor you must fix a
some other hygrometric substance,
scope, thus —



I have told Mr. Merz to send you the necessary directions about the clamping of the endless screw that turns the right ascension circle. I cannot exactly explain it to you, because the mechanism is different from that of our telescope.

Believe me, my dear sir,

Yours most sincerely,

LAMONT.

With reference to the special character of the work that Professor Mitchel should occupy himself with, Mr. Airy thus advised:—

The first application of your meridional instruments must be for the exact determination of your geographical latitude and longitude. The former of these will be ascertained in a short time. The latter requires a long series of lunar transits, and is altogether a very tedious business, but it must be done.

In regard to other uses of the meridional instruments I warn you specially against undertaking any regular series of observations. They cannot be undertaken without a personal establishment larger than you can ever expect to have, and a more complete devotion to the dull drudgery of an observatory than any person in Cincinnati can ever be expected to give; and until they have been followed for years in the same place, they are valueless. Besides, most of the subjects on which you could fix are worked over and over again in existing observatories. For instance, there are probably twenty observatories where the sun and principal stars are observed with considerable regularity; it is therefore useless for you to attempt to observe them except as auxiliaries to other observatories. You will not have the personal strength necessary for following observa-

tions of the moon and planets through all hours of the night, as is done at Greenwich (although for the longitude of Cincinnati the moon ought to be so observed in the first instance), and there are plenty of observatories in which they are observed at the easy hours, therefore it is useless for you to take up them. The subject most likely to occupy your meridional instruments is the determination of the places of some classes of stars, which may be concerned in your equatorial observations.

The whole of your energies, in fact, ought to be given to your large equatorial. There are very few instruments of this class which are used: one in England, and two or three on the Continent. In the observation of double stars, of nebulae, of comets, of planets and their satellites, even mere extra-meridional observations of right ascension and polar distance applying to these objects (small planets, for instance) which cannot at certain times be seen on the meridian; the defection of these different objects under different circumstances, — these and similar pursuits offer a vast field which is yet entirely open. These, too, are the pursuits which will be understood best by your fellow-citizens, and which will most certainly insure their permanent support of the institution. I should think it likely also that, in observations of this inviting nature, the interest taken in the subject would secure you the assistance of ambitious young men, which, in less inviting subjects, might be bought with money.

I shall conclude this long letter with saying that I have entered upon these details because I understand it to be your desire. Possibly, in the recollection of my former position of your first master in the routine of observatory work, I may have expressed myself too decidedly. I am, however, confident that the rules which I have laid down are generally applicable to your circumstances. I shall be much gratified if this communication be received by the managing body of the observatory, and particularly by Mr. John Quincy Adams, as an indication of the interest which I take in the institution and of the deep respect which I feel for that eminent man.

Mr. Struve recommended attention to Jupiter's satellites :—

‘ Astronomy wants a series of good eclipses of the “first” satellite, observed during several years, to determine anew the equation of light and by this means its velocity. It is a question whether the velocity of reflected light is the same as that of the fixed stars, and no observatory is in a more favorable position than your own. A real difference would be an important discovery in the theory of light.

XXIII.

FIRST OBSERVATIONS.

WE have reached a point where we may safely assume that the enterprise begun by Professor Mitchel has been accomplished. A refractor second to none of its time has been purchased; a building for its reception has been erected; the telescope has arrived and been mounted. A plan, pronounced utopian by many at the time of its inception, and even at the present day (when the situation in 1842 is considered) certainly largely tinged with the intangible hues of the rainbow, has been successfully carried through and finished. We have observed Professor Mitchel's methods. They were certainly not such methods as one would think of relying on to-day to accomplish a similar object. We noticed in him, when a still younger man, a tendency which we have held in suspense, so to speak, that he might show us whether it was quixotism or ability to accomplish extraordinary things. The record of the accomplishment of one seemingly quixotic enterprise is before the reader, who is at liberty to judge for himself of this characteristic in the subject of this story.

Professor Mitchel was obliged to do his work alone. Whenever two persons were required,—the one to observe and the other to record,—Mrs. Mitchel would be called in either as observer or recorder, and very few of the early important observations made at Mt. Adams were made without her assistance.

After mounting the equatorial an addition was made to the main building in which to mount a meridional instrument. A transit was loaned by the superintendent of the United States Coast Survey. This was fixed to move on its axis in the plane of the meridian, each axis being mounted on a small stone column, the whole resting on a pier similar to that which supported the equatorial.

Among the different subjects for investigation kindly recommended to him, Professor Mitchel selected double and multiple stars, and set himself about making a catalogue of such from 15° of southern declination to the south. M. Struve had done considerable work in the observation of double stars, and Professor Mitchel made some valuable additions to M. Struve's discoveries.

Among other stars examined by Mitchel (July, 1845) was Alpha Scorpii (Antares, α , in the constellation of the Scorpion), one of the large southern stars. Some twenty or more years before, a German astronomer, while observing an occultation of Antares by the moon, in noting the instant at which the star appeared from behind the moon thought he saw a point of light first break from behind the moon, and in a few moments the whole star burst out, not by degrees, but in a single instant. He ventured to suggest that there might be a small star preceding the large one, and that it only became visible when the large one was hid by the moon. The suggestion received little attention, and Antares was generally believed to be single.

In the following paragraph, Mitchel describes his own investigations and their results :—

During the months of June and July, 1845, this star was the first object which presented itself in the early twilight of the evening, and I was in this way induced to make frequent examinations. I now detected a minute point of light buried in the rays of the large star, and undistinguishable except by the color. The large star is red, while the small one is blue. I was at first induced to believe that there was some defect in the object-glass, and made many changes, but the small stellar point still remained. I then reduced the size of the aperture of the object-glass, receiving less light from the large star, and then applying a high magnifier. The two stars stood out clearly and perfectly defined.

Professor Mitchel had the pleasure of announcing first of all astronomers that Antares was double. M. Struve, writing from the observatory at Pultowa, Russia, on the 13th of November, 1846, said:—

Antares as a double star is a new discovery, for in its great southern declination no northern observatory would see it double, and the Italian observers either care little for these objects, or have no instruments sufficiently powerful for the purpose.

It happened during this summer that the equatorial was mounted, the planet Mars was in opposition with the sun; that is, Mars, being the next exterior planet in order from the sun, had come round to a point where the sun, the earth, and Mars were in a direct line. This brought Mars nearly two hundred millions of miles nearer to the earth than when the planet and the earth were on opposite sides of the sun. Every evening as the sun set Mars rose large and red in the east. It thus presented a favorable object upon which Mitchel could test the powers of his refractor. During the months of July and August he made frequent observations. German

astronomers had seen, at the south pole of the planet, a white, glittering, well-defined spot, which had long been observed, and called the "Snow Zone." Professor Mitchel recorded some singular phenomena connected with the Snow Zone, which had not been noticed elsewhere.

From the time of the burning of the college building and the consequent cutting off of Professor Mitchel's income, his necessities were supplied from the proceeds of his lectures. Every winter would find him in the lecture field, and by spring he would return with means with which to carry on his work at the observatory till the following autumn. However, the wants of his growing family absorbed nearly all that came to him from this source, and he had no other means. There was no endowment for the observatory, and every cent spent in carrying it on after it had been erected and equipped must come from its director.¹ During the first few years after its completion, he was observer, computer, assistant, janitor, and occupied in showing the wonders of the heavens to visitors. The plan on which he had raised the means for his enterprise practically worked badly. He had given the stockholders the privilege of visiting the observatory and the use of its equatorial.

¹ A change afterwards came. Mitchel, writing under date of July 1, 1850, says: "Our society, under the apprehension that our observatory might be dismantled, have raised twenty-five hundred dollars to pay off old scores, and one thousand a year for three years to pay the contingent expenses of the observatory. This somewhat changes my position. At a meeting held some six weeks since, a resolution to appoint a committee to inquire into the expediency of disposing of the property of the society was literally hooted down, although many supposed that the society would consent to the sale of the instruments, and would gladly receive back their money."

Consequently crowds of visitors flocked to Mount Adams. Nothing can interfere with astronomical routine work more than the presence of visitors. But Mitchel kept his pledge, and was always ready to show the wonders of the heavens to all who came.

In order to increase his income and at the same time to add to his efforts to awaken an interest in astronomical science, Professor Mitchel established the "*Sidereal Messenger*," a periodical devoted to astronomical items of interest to both professional astronomers and the people. It was undoubtedly the first journal of that description ever published in America. In the first issue of the second year Mitchel speaks of his multifarious duties, begging its subscribers not to view his journal too critically.

During part of this year every afternoon and evening in the week, except Monday, were devoted to the reception of members of the society and other visitors to the institution. Although this regulation has been so modified that three evenings in the week are now reserved for scientific purposes, I am still liable to constant interruption. During the latter part of the year a large portion of my time has been absorbed in the erection of a *transit circle room* and improving the grounds. Two months were devoted to military duties connected with an appointment from the governor of Ohio, which I could not well decline.¹ Add to this fact that I am prosecuting a series of observations on double stars, clusters, and nebulae, and the generous critic may look with an eye less severe upon the defects of matter and manner which he has thus far detected in the conduct of this journal.

¹ When the war opened with Mexico a family of young children had sprung up about Professor Mitchel. His observatory had but recently been completed, and he did not sympathize with the objects of the war. These considerations kept him out of the service. However, he accepted the position of adjutant-general on the staff of the governor of Ohio, and was largely interested in the work of preparing troops for the field.

So it was that Professor Mitchel commenced work, giving five nights out of six to the members of the Astronomical Society, reserving one night in the week for the various labors recommended by his astronomical friends abroad. This was essential. It was the basis upon which the observatory had been built, and it was proper that visitors should receive due attention. The Astronomical Society wisely gave up this large proportion of time to stockholders after the first year, cutting it down during the second. But to accomplish anything it was necessary for the director to remain in the equatorial room long after visitors had gone. Without an indefatigable astronomer, science at the Cincinnati Observatory was not likely to make rapid strides, at least so long as so much was to be done, and no one but a woman to help.

Perhaps if one event in astronomical science that has occurred during the present century were to be picked out from all the others, as best illustrating the ingenuity of the human mind, it would be the discovery of the planet Neptune. Irregularities in the orbit of Saturn had led astronomers to suspect the existence of a planet exterior to Saturn's orbit, to whose influence these irregularities might be attributed. Indeed, such a planet had been accidentally discovered, but not recognized, the elder Herschel having reported it to the Royal Society in 1781 as a comet. At the instigation of M. Arago, M. Leverrier, a French astronomer, who had shown great aptitude for astronomical computations, turned his attention to computing the elements of the orbit of a supposed planet beyond the orbit of Uranus (then the farthest known planet from the Sun), whose

place was to become known from its influence on Uranus. M. Leverrier completed his investigations on June 4, 1846. On the 25th of September of the same year, M. Galle, director of the Royal Observatory of Berlin, received a letter from M. Leverrier, requesting him to examine that region about the given longitude, and near the ecliptic; as it was supposed the planet, if it existed, would revolve in an orbit nearly coincident with that of the earth. The search was made and the planet discovered near the plane of the ecliptic, and not two degrees distant from the place pointed out by Leverrier.¹

All this occurred the year after Mitchel had mounted his equatorial. He thus describes the first sight of the new planet at the Cincinnati Observatory:—

On the 28th of October, intelligence first reached me of this great discovery (M. Galle's). I had written to M. Leverrier for the very particulars communicated to Galle, but time for an answer had not elapsed.

If the planet should be in southern declination, as theory indicated, the Cincinnati Observatory would have great advantages not only in consequence of the power of its telescope, but from its latitude. The coming of evening was awaited with no small anxiety to turn the equatorial upon the wonderful stranger. Its position was near Saturn and within some fifteen or twenty degrees of the moon, which was throwing out so powerful a light that it was feared that it might interfere with the observation of the planet.

At six o'clock and ten minutes I directed the telescope to the region of the heavens occupied by the new planet, taking my place at the "finder," while my assistant (Mrs. Mitchel) was seated at the principal instrument.

¹ John Couch Adams, an Englishman, arrived at the same results about the same time.

The planet was described as a star of the eighth magnitude. On placing my eye to the "finder," four stars of this magnitude were seen. The first was brought to the centre of the field of view of the equatorial, and, after examination by my assistant, was rejected. The third star, a little smaller and whiter than the other two, was now brought into the field of view, and instantly I heard the exclamation from my assistant, "There it is: there's the planet, with a disc round, clear, and beautiful as that of Jupiter."

Probably the first person who saw Neptune in America — certainly the first woman — was Mrs. Mitchel.

XXIV.

OBSERVATORY LIFE.

MOUNT ADAMS was then a beautiful site. It rose to a height of four or five hundred feet, and from the roof of the observatory the horizon formed a perfect circle. At its foot and to the west lay the city of Cincinnati, and, flowing in a southwesterly direction, the Ohio River, on whose surface steamboats were constantly plying back and forth. Directly south on the opposite bank was the Newport Barracks, a government post; and when the wind was from that direction, strains from the post band at guard mounting or dress parade, came floating over to Mount Adams.

Mr. Airy had said that "an observatory under proper conduct has always been the headquarters of the science of the country in which it stands." The Cincinnati Observatory was more than this. Having sprung from the people, the people were admitted to its interior, and did not seem averse of availing themselves of the privilege. Scientists especially were always desirous of making a personal inspection. Agassiz, Bache, Pierce, Silliman, and many others at different times visited Cincinnati, and were entertained by Professor Mitchel. Whenever notables passed through the city they were taken to the observatory. They usually preferred to spend a quiet afternoon and evening with Professor Mitchel and his family, rather than to have their visits attended

with form or ceremony. It was often a relief for them to escape the crush of those who did them honor. Frederika Bremer, Jenny Lind, Charlotte Cushman, were in turn welcomed in this quiet way. Even Tom Thumb, whose only claim to distinction was a defect, found refuge from the crowds who jostled and stared at him, and played at ball with the children in the observatory grounds. It may seem unkind to bring him into contrast with such intellectual company, yet of all the famous scientists, *littérateurs*, thinkers, and other eminent men and women who visited the observatory, was there one who could look farther beyond the limits which Providence has set about the human intellect, than this dwarf?

Soon after the completion of the observatory, Professor and Mrs. Mitchel made a visit of a niece¹ of Mrs. Mitchel the occasion of an evening *fête* at Mount Adams. It was before the day when such affairs were arranged with the care which attends modern receptions. Nor could one whose life was being devoted to science instead of the accumulation of wealth have afforded any great expenditure. Everything was improvised. There was no gaslight, but hundreds of candles gave the pleasanter, old-fashioned illumination. There was no music at hand, but Professor Mitchel sent to an old army friend in command at Newport Barracks, on the opposite side of the river, asking if two or three musicians could be spared for an evening. When the "two or three musicians" marched into the observatory grounds, it was discovered that the kindly commandant had sent the entire post band.

¹ Now the wife of Doctor Henry Coppée of Lehigh University.

It was a beautiful summer evening ; and hundreds of those who had watched the development of the institution met on the hilltop, with its superb view of surrounding country, and the city lying at their feet, which, as the day died, glittered with myriads of lights. It was a pleasant opportunity on which to congratulate the young astronomer on the success of the enterprise which had cost so much pains and labor. It was one of the first of those more advanced social assemblages that the citizens of Cincinnati knew when their town was just emerging from its township and entering upon its citizenship.

The arrangement by which the roof of the observatory building rolled to one side came, one day, near bringing a very serious accident. Professor Mitchel did a great deal of writing, and was sitting in the equatorial room, where he was at that time accustomed to work. Suddenly a wind-storm came, and the Professor, hearing a rumbling noise above him, looked up, and saw the roof rolling slowly to one side, and, unfortunately, with accumulating velocity, which threatened to drive it off the building into the yard below. The Professor left his papers to drift in the wind, and flew to catch his departing roof. Luckily he succeeded, and held on till assistance arrived. It was brought back to its proper place, and secured. After that he contrived a method for letting it down off the tracks, except when he designed to roll it off purposely.

One morning one of those "ambitious young men" whom Mr. Airy had referred to presented himself at the observatory and asked to be received as an assistant. Professor Mitchel told him that he would be happy of his assistance if he would work with-

out pay. The offer was accepted, and Mr. Henry Twitchell was duly enrolled as first and only regular assistant to the director.

Mr. Twitchell had been a sailor. He had visited nearly every quarter of the globe, and having a mathematical head and a taste for astronomy, made up his mind to settle down and become a student. He took up his quarters on the grounds in a little house called "The Cottage," swung a hammock, and prepared for science and poverty.

Professor Mitchel was then endeavoring to contrive a better method than the one he found in general use for meridian observations.¹ His efforts resulted

¹ The old method for noting the time of the passage of a star (its right ascension) across the field of view of the transit was by holding a chronometer to the ear while the star was passing, first looking at the chronometer to note the minute the star entered the field of view, and counting the seconds by sound to the moment of passage, and making the note in pencil in a book for the purpose. This means was neither convenient nor sufficiently accurate for delicate work. Mitchel conceived the idea of converting time into space, in order that it might be the more easily measured. He constructed a circular disc covered with white paper, which was made to revolve uniformly by means of clock-work. The pendulum of the astronomical clock on swinging to the right was made to cause a wire to dip into mercury, making an electric circuit by a wire connected with a coil magnet. Over the magnet was a small metal plate, to which was attached a light wooden arm about eighteen inches long, at the end of which was securely fixed a pencil, its point resting half an inch above the paper on the disc. When the circuit was made by the pendulum of the clock through the magnet, the plate would be drawn down on the magnet, thus bringing down the arm, the point of the pencil making a dot on the paper. This occurred every other second. If the surface of the disc under the pencil revolved an inch between these two strokes, two seconds of the clock would be represented by an inch of space. Another pencil was connected by similar means with the observing-chair. This circuit could be closed by means of an electric key fixed to the chair, and the second pencil thus brought down would make a point on the disc at the moment of the passage of a star. It would fall somewhere between the dots recording one clock-

in the chronograph, now in use in nearly all observatories of the old and new world. For the construction of this machine, upon which he experimented for years, he had no means. Mr. Twitchell was possessed of remarkable mechanical skill. He could make anything, from an electric key to an observing-chair, and was ready to manufacture or compute all day, and observe the greater part of the night. So handy was he that he soon acquired the sobriquet of "Doctor." He constructed all the machinery in part or in whole used in the observatory. Some of the work was certainly very rough, and, compared with the equipment of a modern observatory, would present a very sorry appearance; but it sufficed for the time.

second and the next alternate clock-second. Thus the hour and minute being known, the number of seconds is recorded, and the fractions of seconds can be determined by measuring the interval between the second of the passage of the star and the next dot. This method has since been extensively used in observatories in other parts of the world, and became known as the American method. An arrangement on the same principle as the foregoing, except taking the record on a cylinder instead of a disc and by a break instead of a make circuit, is now generally used.

Professor Mitchel's fundamental principle in this contrivance—the appliance by which electricity is made to record the beats of the pendulum of a clock—was also claimed by a Mr. John Locke of Cincinnati. Mitchel brought his experiments to a successful termination in the fall of 1848, and exhibited his "automatic clock register" to a number of gentlemen of the United States Coast Survey, and United States Navy at the Cincinnati Observatory, between the 25th and 29th of October of that year. But Mitchel always found it necessary to be stirring in the winter, for he had not only an observatory but a family to support, and during that winter was making the preliminary survey of the Ohio and Mississippi Railroad. When he returned he found a claimant for his invention. This led to a newspaper controversy, which was the only one Mitchel ever took part in, acquiring sufficient distaste for such affairs in this one instance, to prevent his ever entering upon another.

In the transit room, as it was called at the observatory, Professor Mitchel and his assistant spent the greater part of fifteen years. It was a curious-looking place. In the centre was the transit, under which was a pine observing-chair (manufactured by Mr. Twitchell), and in one corner the chronograph, next to which was the astronomical clock; and all sorts of tools and implements were scattered about. Hour after hour during summer nights the sound of the clock-beats every two seconds might be heard recorded by the point of the pencil as it came down on the disc of the chronograph, while a dull whirring sound accompanied the revolving cogwheels that caused the disc's revolution.

When eclipses came, or transits of planets across the face of the sun, or occultations, or when comets swept down, there were busy and exciting times at the observatory. Then the little transit would give place to the more powerful equatorial. Many a night Professor Mitchel would remain in the equatorial room, searching and examining among the heavenly bodies until the dawn in the east warned him that the sun with its brighter light would soon obscure the objects he was watching.

In one of his undertakings Professor Mitchel was doomed to disappointment. He was far ahead of his time with the observatory; he was still farther ahead with the "*Sidereal Messenger*." He conducted it for two years, giving in its pages communications from the most eminent astronomers of the time; but America, particularly the West, was too young to absorb this class of matter. The last number appeared in July, 1848.

Its death ushered in a work which was destined to

be read for many years, if indeed it does not yet become one of those books which outlive the great mass of its fellows, and become standard. The year that the "Sidereal Messenger" was abandoned, Professor Mitchel published his "Planetary and Stellar Worlds." Another name might have been "Development of Astronomy." It traced this development from the earliest record of astronomical observation, giving each new light that had been thrown upon it as one discovery followed another, explaining the motions of the heavenly bodies and uniting them under fixed laws, and concluding with the theory then but recently announced by Maedler of a central sun, about which the universe is supposed to revolve. The book¹ at once became a success, and was a source of pride and comfort to its author.

¹ *Popular Astronomy* appeared in 1860. And a posthumous fragment, *Astronomy of the Bible*, in 1863.

XXV.

FORTUNE.

HONORS now began to pour in from other places, giving testimony of the thorough appreciation both in America and abroad in which Professor Mitchel's efforts were held. In 1846 he was offered the Rumford professorship at Harvard University. In 1851 he was appointed Professor of Astronomy at the University of Albany, Professor Agassiz being appointed to the chair of zoölogy at the same time. These appointments were not accepted, but Professor Mitchel consented to furnish plans for the Dudley Observatory at Albany, which was then in embryo. His plans were adopted, and this was the beginning of an interest in the enterprise which lasted as long as he lived. In 1850 he was elected a member of the Royal Astronomical Society of England. The degree of Master of Arts at Harvard, and an election to the American Philosophical Society at Philadelphia, and other honorary matters, soon followed.

With these honors came also a more substantial blessing. In 1852 the enterprise that had long engaged the attention of the citizens of Cincinnati and St. Louis, the Ohio and Mississippi Railroad, took shape, and Professor Mitchel, who had been its surveyor, was offered the position of Consulting Engineer. The title was to fix his connection with the enterprise, the practical work upon which he was

expected to be the head and soul. It was only expected that he should devote a year or two to this work, and he hoped in that time to secure an independence which would enable him to devote himself to his astronomical pursuits without further interruption. At that day railroads were built mostly from subscriptions to the stock by the counties through which it was expected to pass. Mitchel made a tour of the route, speaking to the farmers who were to vote the county subscriptions. When the officers of the road found themselves loaded with several millions of such securities, they issued bonds secured by a first mortgage upon all the property of the road, and Professor Mitchel was induced to attempt their sale in Europe.

In February, 1853, he sailed for Liverpool on the old Collins line steamer, *Atlantic*. He had felt so keenly the separation from his family during his previous trip in 1842, that he resolved to take his wife and children with him, expecting that his stay might be indefinitely prolonged.

At London Mitchel called on Mr. George Peabody, the eminent banker and philanthropist. Having occasion for a family physician, Mr. Peabody recommended Dr. Henry Holland, afterwards very well known in America, and the introduction resulted in a very pleasant acquaintance. Dr. Holland had travelled over nearly every country in the world. He had read Professor Mitchel's writings, and had published some scientific notes himself. Mitchel had made experiments on Personal Equation, or differences in the individual faculty of observation. He had measured the difference in time required in two different people, on seeing an object, for the brain to

give the order through the nerves to the muscles to record the observation. Dr. Holland had written on "Mental Functions in their Relation to Time," which title alone indicates a similarity in the studies of the two men. Dr. Holland had also, in 1847, written advocating the claims of Mr. Adams in regard to the discovery of Neptune; and Professor Mitchel had had a good deal to say on the same subject in his "Sidereal Messenger." During the whole time of the visit to London the two men were devoted to each other.

Of course Mitchel lost no time in paying his respects to his old friend Mr. Airy at the Royal Observatory. A meeting of the British Association for the Advancement of Science was held that spring in London, which Professor Mitchel attended. He was invited to dine at Greenwich, and two men invited with him were of all others those he would have the most curiosity to meet. They were M. Leverrier and Mr. Adams, the two claimants for the discovery of the planet Neptune.

Now commenced an effort of considerable importance to Professor Mitchel. He attacked Mr. Peabody most vigorously to induce him to purchase and place all the three million securities he had for sale. For three months he remained in London, making constant pilgrimages to Mr. Peabody's little office in "the city," never ceasing to expound to that eminent banker the claims of the road he represented. Mr. Peabody listened patiently to all he had to say, but deferred action from day to day. It was an exciting period to Mitchel. One day he came back from "the city" to his hotel in Trafalgar Square and announced the welcome news that Mr. Peabody had decided to

take the bonds. In a twinkling he had become the possessor through his commission of what for those days was considered at least a competence.

There is an especial pleasure in contemplating these sudden fortunes, coming to that class of men who have no interest in money-making for the mere pleasure to be derived from accumulating. Students deeply interested in their intellectual work are not apt to value money for the power or luxuries it may give them, but that they may pursue their studies in peace. The only other eminent student remembered as having thus suddenly acquired a fortune is the archæologist Doctor Schliemann, who made half a million in blueing. There is as little connection between blueing and the bones of Trojans as there is between the stars and railway bonds. However, Mitchel's fortune came quite legitimately. It was the outcome of one of the two professions he had regularly adopted, — engineering. It was thoroughly appreciated by the man on whom it was bestowed. It rendered him more than comfortable. A large family of children were growing into that age when they should be educated; he had himself passed middle age, and he had long felt a desire for greater independence.

Before returning to America he resolved to take a holiday on the continent. His route lay through Paris, Brussels, Frankfort, Lucerne, and Pisa, and back through Dijon, France, reaching London and sailing from Liverpool in the Atlantic, in June. Six weeks were thus passed delightfully on the Rhine, in the mountains of Switzerland and in Northern Italy. It was not a very extended vacation for one who had passed such severe struggles, but Professor Mitchel

was naturally too active a man to care to spend a longer time in idleness.¹

One of Mitchel's first acts after finding himself thus changed in circumstances was to invite Mr. and Mrs. Airy to make a visit to America. To this invitation Mr. Airy, in a note on May 3, 1856, replied:—

A few days since I received your most kind letter of April 16th, conveying to Mrs. Airy and myself the offer of a passage ticket to America, and soliciting first our presence at the Albany meeting of the American Association, and, secondly, our visit to you and other American friends. Some time ago I received from Mr. Gould a letter acquainting me that this invitation would be sent to us, and wrote to him briefly at the time, saying that I foresaw some difficulty in arranging my plans for such a visit. Since receiv-

¹ On the return trip on the ocean an incident occurred which well illustrates his quick mechanical ingenuity. Just out of Liverpool, Captain West, who commanded the *Atlantic*, one of the best sailors and the best men that ever crossed the ocean, suddenly discovered that his rudder-post was disabled. The rudder did not obey the wheel, moving independently with the waves, showing that the rudder-post was twisting, opening and closing fissures as it did so. The captain put back to Liverpool and had the rudder-post encircled by a number of iron rings, and started again on the voyage. When well out to sea it was discovered that the remedy was ineffectual. The twisting recommenced, and the fissures became larger, till the post bid fair to be twisted into two pieces. Captain West stood in the stern with a party of the ship's officers anxiously watching the fissures opening and closing. Some of the passengers gathered about, among whom stood Mitchel. Presently he said, "Captain, if you will send for some wedges and drive them into those fissures when they open, you will stop that twisting, and your rudder will become effective." The captain looked with astonishment at the small figure of the audacious passenger who had dared to offer advice to a commander aboard his own ship. Then he looked again at his rudder-post. "Go and get some wedges," he ordered, in no gentle tones, to his subordinates. The wedges were brought, and driven in as Mitchel had suggested. The ship steamed on to New York, and the rudder worked to a charm.

ing your letter, Mrs. Airy and myself have carefully considered the matter, and it is with great regret — quite as much to Mrs. Airy (who is very anxious to see Americans in America) as to myself — that we find ourselves compelled to decline this most cordial invitation. It so happens that an absence from home for so long a time as a journey to America requires would in this summer very much disturb our family arrangements. I can scarcely make this intelligible, but every one knows that with a family rising towards the active age, sons and daughters, there are difficulties in leaving home for so long a time as a transatlantic expedition would require. We must therefore, for the present, give up the great pleasure of visiting you.

Another decade has passed in the life we are studying. Ten years before, Mitchel had started without a dollar of his own to build the Cincinnati Observatory. That effort had been accomplished. He was now known as the founder of the first American observatory. He stood first as writer and lecturer on the science of astronomy, and now he possessed a competence. When he returned to his work at the observatory, after severing his connection¹ with the Ohio and Mississippi Railroad, there was no man in America more to be envied than Professor Mitchel.

¹ Mitchel's connection with the Ohio and Mississippi Railroad Company did not cease till the road was built. The following year he was sent over again on a similar errand, but the railroad panic of 1855 coming on in America while he was gone, he folded up his maps and his papers and returned without making an effort.

XXVI.

LAST DAYS AT CINCINNATI.

DURING the decade following the establishment of the observatory a great manufacturing city was growing up around the base of the hill on which it was located. The smoke from hundreds of factories rolled over the environs of the city, and it began to appear evident that a mistake had been made as to the choosing of a site. Meanwhile the early interest which Mitchel had excited in the enterprise had largely died out; the Astronomical Society was very large, and it was found almost impossible to get a meeting. By the terms of the deed, by which Mr. Nicholas Longworth had given the property, it would revert to him or his heirs in case it was not used for the purpose specified. It had become quite valuable. Professor Mitchel endeavored on different occasions to effect some arrangement with Mr. Longworth by which the observatory could be moved, without losing the property, but never succeeded.

The last summer that Professor Mitchel spent with his family at Mount Adams was that of 1856. It was, perhaps, the pleasantest of all the summers ever spent there. It certainly was the most free from care. He had what means he required, his children were all about him, and every member of his family enjoyed a blessing which was soon after forever withdrawn from Mrs. Mitchel—good health.

That fall his London friend, Dr. Sir Henry Holland, visited America. Mitchell had the pleasure of entertaining him in Cincinnati. The main part of the time was spent together in discussing problems and controversial matters in which they were mutually interested.

Sir Henry Holland afterwards published lectures, in which, in some pages on his visit was especially remembered : —

There is no place where the grandeur of the world are so thoroughly rebuked into littleness as in an astronomical observatory.

On my first visit to Cincinnati, in 1856, I spent the night at the observatory on Mount Adams, with the friend, Professor Mitchell, whose reputation as an astronomer and as a popular writer on astronomy is well known. The spot is one magnificent in position, almost as high as the great city so recently created, and over a distance of more than twenty miles the beauty of the Ohio. . . . The nights passed here under a tense clearness afforded me the finest views of the stars and double stars I have ever enjoyed — views in which all earthly landscape become insignificant. On some nights we were strangely interrupted by thundering out in the city underneath, spreading rapidly in newly built American towns, and veiling of earthly smoke the wonders of the heaven.

The next summer (1857) an event occurred which changed the prime motive of Mitchell's life. Mitchell was stricken with paralysis. She survived from this first shock, but constant dread of another.

Professor Mitchell, from the moment of her affliction, made her comfort his first object. His scientific work became secondary to her wishes.

ever it became apparent that she needed change, no work was engrossing enough to prevent his taking her where it seemed best. Indeed, for the four years of her life after the commencement of her illness the husband did little but minister to the invalid wife.

In the spring of 1858 commenced the war, memorable in scientific circles, between the trustees and the council of the Dudley Observatory at Albany. At the end of the controversy the trustees found themselves with a fully equipped observatory and no director. The interest which had attached to the enterprise had suffered greatly from the feeling engendered by the two opposing factions, and it looked as though the observatory must remain ineffective for a long time to come.

Professor Mitchel had taken an interest in the institution from its inception, and it was natural that the trustees should look to him to fill the vacant directorship, and, possibly, restore harmony among the friends of the observatory. While spending the summer at the Yellow Springs, in Ohio, where he was devoting himself to his invalid wife, an invitation to take charge of the institution at Albany reached him.

The invitation was neither declined nor accepted at the time. On returning to the city in the fall he occupied himself in an effort to secure a new site for the Cincinnati Observatory, but without success. In a letter to his friend, Mr. Ripley, he thus speaks of his disappointment:—

My hopes with reference to the observatory here have been again disappointed by the change which, within a few days, has taken place in the views of Mr. Longworth. A short time since he and I agreed on a plan for the dispo-

sition of the four acres now occupied, which appeared entirely satisfactory, but when called on to execute the plan in legal form he declines absolutely, and for the present we are compelled to remain where we are, in the midst of smoke, or lose the ground we now occupy. Here, again, I am compelled to *wait*, and this seems to be my destiny in all things. But I do not complain and will not. If God will only give me to feel that his own hand guides, I am willing to follow.

It now became evident that there was no hope of making any arrangement for the removal of the observatory without giving up the ground on which it stood, and procuring a new location, which, in view of the rise in the value of surrounding real estate, would cost considerable money if purchased. Professor Mitchel's means had been invested largely in railroad property, which had depreciated and had temporarily ceased to give him any income. His children were grown, but had not yet become independent, and at no time in his life did he have need of a larger income. Mrs. Mitchel required his whole attention, thus keeping him, in a measure, from the lecture field, and, indeed, he was in no way situated to undertake the erection of a new observatory building.

The trustees of the Dudley Observatory had offered him a house and some salary. At Albany he would not be so far from points to which he could make short trips for the purpose of lecturing, and thus avoid long absence from home. Added to all this, Mrs. Mitchel was very anxious to be again on the banks of the Hudson River, where she had passed her girlhood, and her wish, especially in her sad condition, was considered first by her husband.

These considerations at last induced Professor Mitchel to accept the directorship of the Dudley Observatory. He wrote the trustees as follows:—

In case there is a fair prospect of a permanent, quiet, and peaceable possession of the observatory, with a fair chance of a reasonable income to sustain the institution, such as has been already stated, I shall undoubtedly accept your invitation, and remove my family to Albany.

In the spring of 1860 he left Cincinnati. He did not resign the directorship of the observatory there. He left Mr. Twitchell in charge, thus becoming director of two institutions.

XXVII.

FAREWELL LECTURES.

WE have followed Professor Mitchel through the work of building the Cincinnati Observatory, in watching, through fifteen years, the motions of the stars, and in pleading the cause of science in the lecture field. His work in the field where his oratorical powers came into play was, perhaps, the most important of his life. Before closing this account of his scientific career it may not be amiss to make brief mention of the last great course of lectures he ever delivered, in the Academy of Music, in New York. An effort had been started to erect an observatory in Central Park, and in order to create a fund and awaken an interest Professor Mitchel was called from Cincinnati, which was then his home, to give this course of lectures. He never delivered a course that attracted so much attention. He had been for many years speaking of the stars, and was at the summit of his familiarity with the subject and of his oratorical powers.

The effort was a brilliant success. From the opening to the close the audiences were large and enthusiastic. The lectures proved the event of that winter.

When the audience had assembled to listen to the last lecture the Academy was filled. A cultivated and appreciative audience occupied the parquet and circles almost to the ceiling. On the stage the

lecturer was supported by many of the most eminent citizens of New York. Not the wealth and fashion, but the cultivated and intellectual gathered by hundreds to listen to a course of renown had been growing until, at this last effort, it had risen to the highest point.

As Professor Mitchel sat there on the stage, surrounded by hosts of friends and admirers, waiting for the vast audience to be seated, his thoughts might well have turned to that moment at Boston when he had stood up, fourteen years before, in desperation, to address the thin knot of people who had ventured out to hear him. Then he had been supported by but one kindly, familiar face in the audience. But it was enough: it was the face of his wife. The day had passed when she could come into an assembly to listen to him. His thoughts may not have rested on that first Boston audience, but there is little doubt that they did rest on the invalid at home, whom a messenger sent by a friend had apprised of her husband's splendid reception.

Professor Loomis arose and offered a series of resolutions. They were an eulogium upon Professor Mitchel. Professor Davies, who had been a professor at West Point when the lecturer was a cadet, followed, paying another tribute. Then, after the resolutions were adopted, Governor Luther Bradish, with all the grace of bearing and speech for which he was noted, advanced and introduced the lecturer. As Professor Mitchel walked to the stand and stood for a moment surveying the audience before beginning, it seemed that one so small could scarcely serve to enkindle that enthusiasm expected of him upon so abstruse a subject.

The opening and the end of his lecture, which was taken down phonographically, may be given verbatim; but no pen can give the magnetic power that accompanied his words.

I know not how to answer in fitting terms the greeting of this night. The honorable and flattering allusion which has been made to me by my old preceptor and personal friend I cannot respond to. His feelings of kindness and affection for an old pupil have carried him far beyond the just limits which should have restrained his remarks. I appreciate his motives, but aspire not to the high eminence upon which in the kindness of his heart he has sought to place me.

I have been called hither by the invitation of a number of personal friends and strangers to speak on behalf of science. I came humbly at the call, and was told that I was to address a multitude in this vast building; but had I known the responsibility which has been imposed upon me, I am confident I could not have mustered the courage necessary to have passed the thousand miles of interval which separates your city from my home. I am happy, however, that I am here. Notwithstanding stormy and tempestuous weather, I have been greeted night after night by your kind faces, until I have learned to feel that in some sense at least you are all my personal friends. I have further evidence of this friendship in the fact that you are here again to-night at the termination of a long and perhaps tedious course of lectures, and I thank you one and all from the very depths of my heart for this manifestation of your good will.

If I have contributed in the slightest degree in the advancement of that great movement which has been auspiciously inaugurated to-night, I shall esteem it the proudest effort of my life; and if some biographical sketch shall ever mark to posterity the fact that I ever lived, upon the page that contains the record I would point my children to that paragraph which says, "Your father was in the outset connected with this grand enterprise," an enterprise

which I trust is to eventuate in the noblest and proudest structure that has ever been reared upon the surface of the globe to the science of the stars.

Permit me as a stranger to say a word or two with reference to this movement.

When I stood, some fourteen years ago, in my own little city before a multitude like the one which I now have the honor of addressing, and there for the first time lifted my voice in behalf of a noble structure, whose chief ornament should be one of the grandest instruments that science and skill have ever produced, I ventured to make an appeal of this kind: — The Old World looks with comparative contempt upon the profound ignorance and inertness of the New. They point to us and say: Yonder is activity and strength and power and vigor, but it is all put forth to grasp the almighty dollar. And when I stood before that great assemblage and said, Let us rescue our country from the stain resting upon it; let us show to the crowned heads of Europe that free, independent, republican America can take the lead even in science itself, the response to my appeal afforded the most gratifying evidence that in the end this grand object would be accomplished. What is the result? A short time after the commencement of the undertaking — and at that day there was scarcely an observatory in our country — I visited Europe. I went to Munich, the great centre for the construction of these mighty instruments, and there I stood in the presence of the successors of old Frauenhofer and Utzschneider. I said to them, “Your predecessors sold to the Emperor of Russia the great equatorial refractor. And why? Simply because they desired that their skill and handiwork, displayed in this masterpiece, should fall into the hands of some profound astronomer, and thus give them a world-wide reputation. Sell to me,” I said, “poor, simple republican that I am, and yet one of the nobles of our land, this mighty refractor, equal to almost any other in the world, at cost, in like manner, and I will guarantee that in the next ten years you will get more orders from the United States than from all the other countries of the world together.” They would

not make the sale on these terms, and yet during that time they have received more orders from this country than from all others, and we have built more observatories and erected more magnificent instruments than all the world besides. Now our scientific men stand on the same high platform with those of Europe. They hail us as brothers, in this grand and noble crusade against the stars. We are moving on together, a solid phalanx; the watch-towers are rising all over the earth, and the grand cry is "Onward!" It is echoed from observatory to observatory. The sentinel is everywhere posted, and do you not mean to post one on your rocky heights? I know you do.¹

Professor Mitchel then delivered a lecture on the unfinished problems of the universe; at the close he said:—

Now, my friends, I must close this long course of lectures. We have passed from planet to planet, from sun to sun, from system to system. We have reached beyond the limits of this mighty stellar cluster with which we are allied. We have found other island universes, sweeping through space. The grand unfinished problem still remains. Whence, whence this magnificent architecture, whose architraves rise in splendor before us in every direction? Is it all the work of chance? Who shall reveal to us the true cosmogony of the universe by which we are surrounded? Is it the work of an omnipotent architect? If so, who is this august being? Go with me to-night, in imagination, and stand with old Paul, the great apostle, upon Mars Hill, and there look around you as he did. Here rises that magnificent building, the Parthenon, sacred to Minerva, the goddess of Wisdom. There towers her colossal statue, rising in its majesty above the city of which she was the guardian, the first object to catch the rays of the rising, the last to be kissed by the rays of the setting sun. There are the temples of all the gods; and there

¹ The exciting events of 1861 to 1865, occurring very soon after, were doubtless the cause why the work was not then accomplished. Since then it has never been revived.

are the shrines of every divinity. And yet I tell you these gods and these divinities, though created under the inspiring fire of poetic fancy and Greek imagination, never reared this stupendous structure by which we are surrounded. The Olympic Jove never built these heavens. The wisdom of Minerva never organized these magnificent systems. I say with Saint Paul: "Oh, Athenians! in all things I find you too superstitious; for in passing your streets I find an altar inscribed '*To the Unknown God*' — Him whom ye ignorantly worship. And this is the God I declare unto you — the God that made heaven and earth, who dwells not in temples made with hands."

No, here is the temple of our Divinity. Around us and above us rise sun and system, cluster and universe. And I doubt not that in every region of this vast empire of God, hymns of praise and anthems of glory are rising and reverberating from sun to sun, and from system to system, heard by omnipotence alone across immensity and through eternity.

XXVIII.

THE RED PLANET.

PROFESSOR MITCHEL had designed the Dudley Observatory after he had acquired the practical experience obtained in the one at Cincinnati. The observatory proper was separated from the dwelling intended for its director, which was a wonderful improvement on the one he had first built, where observatory and dwelling were together: though in that case he was hampered by want of means, and did not feel justified in incurring the expense of erecting two buildings. The Dudley Observatory was well equipped. It contained an equatorial, one of the first constructed in this country, and a very handsome meridian circle presented by Mr. Thomas W. Olcott, of Albany, one of the trustees.

From the site at Albany, one may look down on the Hudson River and the hills on the opposite shore, furnishing a very pretty view: and during the summer of 1860 a happy family spent many a pleasant afternoon and evening on the broad veranda built across the whole east face of the dwelling. Professor Mitchel had been married so young that he had lived to see his children grow up about him, and was not yet an old man. His stepson had volunteered for the Mexican War. Professor Mitchel secured him a lieutenancy in the regular army before the close of the war, but exposure in Mexico brought on con-

sumption, and he died in 1850. His own children consisted of three sons and three daughters. His daughters were all with him then, unmarried; his oldest son was in business in New York, another had just returned from college, a third he was preparing for West Point. During the summer of 1860 he had them a great deal with him; indeed, at times they were all under the same roof-tree together. But for the one melancholy matter of Mrs. Mitchel's uncertainty as to future attacks of her disease, the family circle might have been regarded as near the perfection of happiness as can be attained on earth.

August Sonntag, a young astronomer of great promise, and who had been with Dr. Kane's expedition to the North Pole in 1853-5, was at Albany that summer, or the early part of it, as assistant in the observatory. Professor Mitchel deemed himself fortunate in having such a man with him. Sonntag was not only a rising astronomer, but an extremely pleasant and accomplished man, and soon became a great favorite with Professor Mitchel and his family. But Dr. Hayes was organizing his expedition of 1860 to the Arctic regions, and succeeded in persuading Sonntag to go with him as astronomer.¹ He left Albany regretted and regretting.

¹ While in winter-quarters on the coast of Greenland, Sonntag started on an expedition to Whale Island in a dog sledge, accompanied by Hans the Esquimaux, well known to readers of Arctic lore. On this expedition Sonntag met his death. Dr. Hayes describes the incident in his *Open Polar Sea*:—

“Sonntag, growing a little chilled, sprang off the sledge and ran ahead of the dogs to warm himself with the exercise. The tangling of a trace obliging Hans to halt the team for a few minutes, he fell some distance behind, and was hurrying on to catch up, when he suddenly observed Sonntag sinking. He had come upon the thin ice covering a recently open tide-crack, and probably not observing his

Professor Mitchel cast about for another assistant. A young man, Mr. G. W. Hough,¹ had been doing

footing, he stepped upon it unawares. Hans hastened to his rescue and aided him out of the water, and then turned back for the shelter which they had recently abandoned. A light wind was blowing at the time from the northeast, and this according to Hans caused Sonntag to seek the hut without stopping to change his wet clothing. At first he ran beside the sledge and thus guarded against danger; but after a while he rode, and when they halted at Sorfalik, Hans discovered that his companion was stiff and speechless. Assisting him into the hut with all possible dispatch, Hans stated that he removed the wet and frozen clothing and placed Sonntag in the sleeping bag. He next gave him some brandy which he found in a flask on the sledge, and having tightly closed the hut he lighted the alcohol lamp, for the double purpose of elevating the temperature and making some coffee: but all his efforts were unavailing, and after remaining for nearly a day unconscious, Sonntag died. He did not speak after reaching the hut, and left no message of any kind."

More than a year after the sailing of the expedition, and after Sonntag's death had been announced, Professor Mitchel received from him a last farewell which seemed to him, he said, like a voice from the dead.

DANISH SETTLEMENT, UPERNAVIK,
BAFFIN'S BAY, *August 15, 1860.*

MY DEAR SIR:—I take the last and only opportunity which offers before we enter the ice to write you a few lines to report to you our progress and prospects, and to wish you once more "good-by." We made an unusual quick passage from Boston to Discovery Island, which we reached by the first of August, but afterwards were detained by a calm for five days before entering the port of Prøven. There we expected to obtain dogs and furs, but could not get all we wanted on account of the great mortality of the dogs last winter and the consequent failure of the reindeer hunt. Our ship had to be prepared for entering the ice also, and we stayed about five days before sailing to Upernavik, where we arrived two days ago. Here we got the remainder of what is wanting mostly through the kindness of the officials, who supply us from their own private stock with great willingness.

Dr. Hayes and myself get along admirably, as I knew beforehand we should. But my duties here on board are so varied that I have not had a leisure moment for scientific work, and not even enough to

¹ Now director Dearborn Observatory, Chicago.

some work with Mr. Twitchell in Cincinnati; and Professor Mitchel offered him the position. It was accepted, and Mr. Hough at once came to Albany and entered upon his duties.

The period of Professor Mitchel's entry into the field of astronomical science had been marked by the discovery of the planet Neptune, the last of the great discoveries of the existence and the motions of the heavenly bodies destined to occur during his lifetime. The end of his career was the beginning of a new era in astronomy. For years the astronomer had been plodding on, accomplishing little save utilizing past discoveries, and rendering more accurate the means for making and recording observations.

reduce the pendulum experiments which Professor Bond had the kindness to make for me in Cambridge. While at sea we had mostly such stormy weather that it was not possible to do anything but attend to the ship's duties; and since we are on the coast I have to act as pilot when sailing, which requires my presence constantly on deck, and in port I have to act as trader and interpreter. Besides I have charge of the provisions, which consumes much of my time. I doubt if before the beginning of November I shall find leisure to commence work which is more congenial to me; but short-handed as we are, everybody must put his shoulder to the wheel until we are comfortably prepared for the winter. And I am glad to say that there is the right spirit and excellent harmony among the few members of our small party.

And now, my dear Professor, I must say the last "good-by." I never can thank you enough for all your kindness and for the interest which you have taken in my welfare. The prospect of being again with you after my return encourages me more than anything else. In all that I do it will be always my object to deserve your good opinion.

Please remember me kindly to your family, and give Mrs. Mitchel my most sincere wishes for the improvement of her health. Good-by. Believe me ever,

Frauenhofer's lines were well known in Professor Mitchel's time, but they were uninterpreted hieroglyphics. At the close of his career in science it was discovered that "a glowing gas gives out rays of the same refrangibility which it absorbs when light passes through it." Frauenhofer's lines were seen to be intercepters of light — inscriptions giving the physical constitution of the heavenly bodies. The key had been found. The spectroscope became an ally of the telescope. But by this time a great change had come in the life of the man who brought the first great refractor to America.

Every evening a star blazed large and red in the east. It was the planet Mars. For fifteen years, since Professor Mitchel had tested the power of his new telescope at Cincinnati upon it, Mars and the earth had been circling about the sun, till again Mars was in conjunction and at its nearest point to the earth. One evening Mitchel stood on the veranda in the midst of a happy party, looking out contemplatively on the God of War. Doubtless memories of 1845, when he was charmed at the admirable performance of the instrument he had been at so much pains to get, when his hair was not yet flecked with gray, when his children were "wee things toddlin'," came up before him sweet but melancholy. At any rate, with a touch of sadness in his voice, he said, "I wonder where we will all be when he comes round again to another conjunction in fifteen years."

PART II. WAR.

I.

CHANGE.

It is the summer of 1861. The government is in peril, and those whom it has trained to military service are springing forward to its defence. The time has come for Mitchel to render back to Cæsar the things which he had received from Cæsar. With the training given him thirty years before by the people of the United States he had gone forth to achieve success. It had secured him enviable rank among scientists and engineers ; it had given him fortune. What honorable man could sit quietly at home when the source from which these blessings had been derived was suddenly menaced by a great danger ?

From this point, the narrative, for those who hold the heavens in reverence, and to whom war appears at the further extremity in the catalogue of sciences, must be drawn on a far narrower scale. Among the stars, man reaches his sublimest conceptions ; and while war may call out much that is noble, it cannot be denied that in a state of warfare he descends towards barbarism. For some, the completeness of Professor Mitchel's life will seem to be marred by this descent from the quiet grandeur of astronomical investigation to a field so widely different. This

effect cannot be averted. The year he spent in the army constitutes the last—in many respects the most eventful—of the chapters of his life. And it will appear, as the short story of his military service is developed, that he was about to take the rank in War that he had held in Science, when a special influence interposed, and he was soon after cut off by death. Whether he could have maintained such a position is a matter of conjecture.

There is another feature discouraging to the biographer. Heretofore it has been possible to give the record without a word of criticism upon the acts or intentions of any individual. To refrain from such in this portion of the work, is without the bounds of practicability. General D. C. Buell, in reviewing the battle of Shiloh, has said: "I was advised by friends in whose judgment I have great confidence to write an *impersonal* account of the battle. The idea was perfectly in harmony with my disposition, but a moment's reflection showed me that it was impracticable. It would ignore the characteristics which have made the battle of Shiloh the most famous, and to both sides the most interesting, of the war. The whole theme is full of personality." This is true: and what is true of one battle pertains to the whole war. The history of armies is the history of their generals. In such matters the personality of men enters into events. It is not from the voluminous reports of engagements that we get the most entertaining features of a war, but from those indications, unimportant in themselves, which go to show the personality of the commanders; for there is no one element on which success or failure depends so largely as on this.

Nevertheless, the narrative will be confined so far as possible to General Mitchel's own part in it, and no more of the unpleasant features of that period so full of intrigue and mismanagement will be given, than are absolutely necessary to the story.

For Professor Mitchel there now commenced a conflict between two duties — the one to his country, the other to his family. Mrs. Mitchel was in an extremely critical condition, fearing each day another paralytic stroke that would undoubtedly prove fatal. She had at best but a brief period to spend in the society of her husband and her children. Upon her husband she was dependent more than upon all the rest for encouragement and sympathy. Could she bear the separation? She made the decision herself. That period called out many instances of woman's fortitude, but none more marked than that of this wife, expecting the summons of death at any moment, sending her husband out to encounter the dangers of war.

It was due to the efforts of Secretary Chase, who had known of Mitchel's work in Ohio, and more especially to Senator Ira Harris, who had known him in Albany, that he was offered a commission. In August, 1861, the President appointed him a brigadier-general of volunteers. This was a month after the battle of Bull Run, and a great many general officers had been appointed who would outrank him. While the Southern leaders, Davis, Lee, the two Johnstons, were chosen from those who had been with him at West Point, the Northern leaders were taken from those who had followed from ten to fifteen years after. It is a noticeable fact that no important independent command in the Union armies was given

to any man of Mitchel's time. Mitchel entered service as a brigadier-general,¹ and was assigned command of a single brigade. Nor did he accept this subordinate rank unwillingly. He seemed perfectly willing to do what he could in a comparatively unimportant.

On the 18th of August, 1861, Mitchel bade adieu to his wife for a few days, while he should be in Washington, promising to return before taking his final leave. They were spared the pain of the parting. They never met again. The day after his husband's departure, Mrs. Mitchel received a paralytic stroke, and died before he could reach home.

And here we come to the turning-point in the life of one whose whole career had been inspired by love for this woman. From the days of his youth at West Point and Cornwall, through his early years at Cincinnati, his struggles to establish the laboratory, his work in the lecture field, his effort to gain competency for her and their children, there had been one guiding influence, and that influence was I. Clark's. Not one woman in ten thousand could have guided and inspired that career as she guided and inspired it.

And only the man who came back to a domestic household thoroughly recognized all this. Never before he needed her counsel and sympathy as during this period of military service upon which he was about to enter. The field was one in which the most able management, patience, and policy were required to enable any man to pursue his way to a point where he could be useful as a leader. Mitchel needed

¹ One historian says that Mitchel was the most distinguished who returned to the army at the opening of the war.

guiding influence to control his restless energy and make it effective. Then, too, there was a simplicity of character, a too great faith in the purity of his intentions, and a childlike confidence in the purity of the intentions of others. These defects had been largely supplied by his wife. Her influence was now cut off, not only depriving him of the controlling power to which he had been used, but destroying that powerful incentive which had existed in his love for her,—his desire to win her approbation. Her absence is as plain in the narrative that follows, as her presence has been in all that precedes.

Now came the breaking up of home—the parting of a family sundered for the first time, and never to be reunited on earth. General Mitchel took his daughters to New York—one of them had been recently married;—the remains of the wife and mother were placed in Greenwood Cemetery; then taking with him a son¹ who was to serve on his staff, he left again for the front.

Of course his active directorship of the two observatories of which he was still the nominal head ceased. Mr. Twitchell continued in charge at Cincinnati, and Mr. Hough at Albany.

¹ The editor of these papers.

II.

CINCINNATI.

It will be necessary to push rapidly forward over the ground traversed by General Mitchel during the fall of 1861 and winter of 1862. But in order to trace his movements it will be well to glance at the situation of the national forces at the commencement of the autumn. General McClellan¹ was reorganizing the Army of the Potomac, after the first battle of Bull Run, and a great deal of solicitude was felt at Washington for the safety of the city. General Rosecrans was in command of a small army in Western Virginia, which General McClellan had left upon his appointment to a higher command. General Rosecrans's authority extended over the State of Ohio, which lay adjacent to and in rear of his field of operations. General Robert Anderson was at Louisville, commanding what was then called the Department of the Cumberland, embracing the State of Kentucky and Eastern Tennessee. General Fremont was in Missouri; while U. S. Grant, an obscure

¹ "General," said Mitchel to McClellan, upon reporting for duty, "you are a much younger man than I; but it is essential that you have the undivided and unqualified support of all your generals. I promise you mine most heartily."

Mitchel was disappointed at the want of cordiality with which his proffer was received. It would not be proper to assign a reason for McClellan's want of appreciation for this frank statement, when the reason is not known. The fact is stated merely as an incident.

colonel of volunteers, about that time advanced to be brigadier-general, and who by no means reflected the state and dignity of his chief, was slowly working his way down the Mississippi River towards Cairo.

General Mitchel found a gloomy state of things in Washington. The Confederate army was defiant but a few miles south of the capital; and Mitchel had only to ride across the Potomac, and with a small glass he could see their sentinels pacing back and forth on their works. No one knew what day they might push forward. The leader of the Union army had been but a short time in command, and was untried. There was no confidence either in the government or the army, or among the people.

General Mitchel's first letter after leaving home is very melancholy. The unfortunate condition of affairs at Washington, acting with his recent grief, naturally threw over him a cloud of gloom. He had been visiting at the house of Secretary Chase, where, in the company of Mr. Chase's family, he had endeavored for an hour to throw off his sorrow.

I sometimes forget the scenes which have so violently sundered us in the excitement of conversation and preparation; but when even the most deeply absorbed, the memory of joys and sorrows comes over me, and almost arrests the very words I am about to utter. I can only go for consolation to the great Source and Fountain of all happiness, and in the thought that the spirit of our beloved one is ever near me, in the still hours of the night as well as in the rough energy of the day, go forward under God's guidance in the discharge of every duty.

The command to which Mitchel was assigned was Franklin's brigade, that officer being promoted to the command of a division. Mitchel went across the

river and reported to Franklin. He had as yet no equipments, but guided by Colonel Jackson, of Albany, rode through the camps of his command. He returned to the city the same evening, and found that something had occurred which changed entirely the field in which he was destined to act.

Upon returning to his hotel he was surprised to find an order from General Scott directing him to proceed at once to Cincinnati and assume command of a camp of rendezvous near the city, and confer with the Governor of Ohio. He was informed that he would find his instructions at the headquarters of the department. The order being not very intelligible, General Mitchel called on those whom he supposed would be most likely to explain it, including General Scott and the President. All that could be learned was that citizens of Cincinnati, alarmed at the Confederate general Zollicoffer's advance from East Tennessee into Kentucky, and, as it was supposed, upon Cincinnati, which had been left by the department commander, General Rosecrans, without a military head, or troops, or arms, requested that an officer be sent them (General Mitchel preferred), to assume command and organize a defence.

There seemed nothing to do but obey the order; and as the request came with great urgency, General Mitchel, leaving the proper authorities to explain his hurried departure to General Franklin, took the train for Cincinnati.

In these peaceful times it is difficult to appreciate the state of affairs during the autumn of 1861. The nation was at the beginning of a great war for which it was entirely unprepared. The extended border

between North and South was without protection against any incursions which the rebels might see fit to undertake. The staff of the army was inadequate to the great burden so suddenly thrown upon it. The Treasury was unable to respond to a tithe of the requisitions that were pouring in from all parts of the country. The calls for arms, equipments, clothing, food, money, and especially for troops, were a perfect babel. And when these were forthcoming there were no means by which they could be properly distributed.

These were the conditions under which General Mitchel entered Cincinnati, in the early part of September. He found a chaos. From the moment of his arrival all responsibility, except such as belonged to the governor of the State, was transferred to him. He was expected to throw a force into Kentucky to oppose Zollicoffer, but there was no force to throw forward. He was expected to build fortifications, but there was no money to pay for them. Besides these difficulties there was one which appeared trifling to Governor Dennison, but which General Mitchel, better understanding army systems, foresaw at once would be an important obstacle.

While in the army, General Mitchel wrote frequently to his children, and to two intimate friends, Mr. Thomas W. Olcott of Albany, and Mr. George S. Coe of New York. His acquaintance with Mr. Coe (formerly a Cincinnati) dated from the days when Mitchel was building the Cincinnati Observatory; while Mr. Olcott was one of the trustees and virtually manager of the affairs of the Dudley Observatory. Both these men had great confidence in their friend, who had but recently stepped to the front at

the President's call. Both sought all through the trying period of his army service to soften the burden by holding out hope that patience would bring order, and that ample opportunity would follow for all good men to work to advantage.

In quoting from the letters General Mitchel wrote his children no name will be given; and all extracts quoted without mention to whom the letters were addressed were to some one of his family.

TO MR. OLCOTT.

CINCINNATI, 8th September, 1861.

On reaching Cincinnati I telegraphed the governor, who promptly came here on Tuesday of last week. I then learned that there was much alarm among the citizens, that no preparation had been made to defend the city, that a sudden attack was not impossible, that neither men nor guns were here, and there was no military head. I had been sent for because the citizens of Cincinnati and of Ohio desired that the defences of the city, and the camp of instruction, and the military of the State should be placed under my command.

I frankly told the governor that all this was simply impossible; that Ohio, as a military district, belonged to the department under charge of General Rosecrans; that the defences of Cincinnati were to be made on the opposite side of the Ohio, in a military department in charge of General Anderson; and that, as to Camp Dennison, it would not suit me to become a drill-master of troops to be turned over to the command of other men. The governor could not conceive that General Anderson could make the smallest objection to the plan; neither could the Assistant Secretary of War.¹ "But," said I, "governor, it is easy to settle the matter: let us go to General Anderson and lay the case before him." This was done; and, as I anticipated, the general promptly replied that he could not for one

¹ The difficulty had been foreseen at Washington.

moment entertain the proposition. Of course I remained silent and permitted the governor to do the talking.

We returned, and continued our conference. I learned from him that the recruiting of volunteers was moving very slowly, and could not furnish the men required in season to meet the demands of the country. I then presented a plan to avoid the disgrace of resorting to drafting, and said we could try it here in the city, and prove promptly what our reliance must be. I found an independent regiment of about one thousand men, composed of young men of good family, and already uniformed and drilled to some extent. I laid my plan before the colonel; he approved it; and on Wednesday evening I met all the officers. They gave the plan their hearty approbation. On Thursday I met the entire regiment at a large hall, and after the military had been seated it was crowded with citizens. I addressed them for thirty minutes, explained my plan, and when called upon to signify their approbation by rising, they all sprang to their feet, and the entire crowd rose, and there was a wild scene. The next evening I addressed the employers; and they in like manner rose and pledged their support.

I have started Camp Dennison, where we now have about three thousand men, all in the rough, without equipment and without arms. I find a clashing between the general and state government in almost every department, but a perfect readiness on the part of Governor Dennison promptly to remove every obstacle.

At his invitation I go in the morning to Columbus to confer with him and the heads of the different departments. I have as yet received no instructions from Washington or elsewhere, and my position is anything but pleasant. I telegraphed General McClellan on yesterday to permit me to return and head my brigade, in case a battle were imminent. As yet I have no reply. I am willing to come back in case I can do more here for our country than on the Potomac, though just now this is the saddest place on earth to me. My friends have received me with every kindness, but every face and every object reminds me of happier days now gone forever.

I quitted my brigade with great reluctance, and before doing so went to General Scott, to General McClellan, and to Mr. Lincoln. They all said to me it was my duty to go; but McClellan said to me the last thing, "So soon as you can be spared in Ohio I want you here."

The condition of Kentucky is becoming better every day. General Anderson is now in Frankfort, and I hope for a favorable action on the part of the legislature. But these slow States are not to be trusted. Their devotion to the Union always is accompanied and qualified by conditions, and in my opinion a large army on the borders of the Ohio would operate favorably on the loyalty of Kentucky. In case I can receive authority I will try to recruit such an army in person.

There was a dead lock at Cincinnati. It was a bad omen. General Mitchel, upon his very entry into the service, was called upon to protect a city from an enemy said to be marching upon it, and on account of the peculiar arrangement in the geographical lines of two adjacent departments, he was unable to cross the river and build the necessary works.

There was but one thing to do: to represent the case at Washington and let the authorities there untie the knot. General Mitchel was but an officer of the army, and was not qualified to represent the interests of the State of Ohio at the capital. Finding it impossible to act, he was ready to go back to his brigade on the Potomac. But Governor Dennison was not so minded. He requested Mitchel to act with him, and it was determined that the two should go to Washington to represent the matter to the government. General Mitchel started, the governor promising to follow him in a few days.

WASHINGTON, *September 13, 1861.*

I reached here on last evening direct from Cincinnati. I came at the request of the governor, who expects to arrive to-night, our object being to place me in a position to accomplish something in Ohio, or to relieve me from duty there and restore me to the command of my brigade. I was directed to report for instructions to the headquarters of the Department of the Ohio. This I did for seven consecutive days, and, as no instructions came, on Monday last I went to Columbus, and after an interview with Governor Dennison it was decided I should return here.

I have applied for leave to remain here and head my brigade in the expected battle, and have some reason to hope my wish will be granted. Then I see no objection to be ordered to Ohio, provided the military interests of the State are placed under my control, and I am offered a body of troops to lead to the field proportioned to the service I may perform.

WASHINGTON, *September 15.*

The governor of Ohio was expected in this city on last evening, but failed to come in. I presume he will be here this morning, and then it will be very soon decided what is to be my future position.

WASHINGTON, *September 17, 1861.*

Last evening on returning to the hotel I found your letter, the first I had received from you, but not the first you had written. I had spent the evening until very late with Governor Dennison, General Scott, and the Assistant Secretary of War, in talking over and arranging the features of my command in Ohio. It is now decided to place the entire State and a small portion of Kentucky under my control, charging me with all the defences of Cincinnati, and promising me in a short time, if I am successful, the command of a major-general in the field.

I dined on yesterday with General Scott, and found him as young and genial as ever. While at table a beautiful plate of fruit, with flowers and a charming little note, from some fair lady, were presented to the General. We were

all anxious to act as his secretary, and read and answer **the** note; but he drew himself up with great dignity and **re-**plied that he had no need of any assistance of that **kind**. His spirits are remarkably good, and but for his gout and a slight paralysis in the back he would not look over **fifty** years of age. We had many jokes and much amusing chat, carefully excluding all business, which is his habit **at** dinner.

There is a powerful effort to detain me here, — so I **am** mysteriously informed by an old West Point friend, and **to** promote me to a higher command here, — but I am **per-**suaded it will not succeed. God guides and controls **me**, and wherever I am called by duty I am ready to go. **It** matters little now where I am. General Scott and others think I ought to go to Ohio, and it is not for me to decline a position in which I may do good service.

At the conference between the Assistant Secretary of War, General Scott, and Governor Dennison, **the** new Department of the Ohio was created, embracing Ohio and so much of Kentucky as lay directly south of Cincinnati within a radius of fifteen miles. **The** department was placed under the command of General Mitchel.

It was the best that could be done at the time, but it was a mere makeshift. The new department should either have embraced Central Kentucky and East Tennessee, or have been added to the Department of the Cumberland. It was unfortunate for General Mitchel to be called upon to take charge of such a department. He wished for duty in the field, and there was little hope that he could throw troops into the department south of Cincinnati, to be headed by other men, and then go and supersede them. He could have been ordered to the command of his brigade on the Potomac had he insisted, but encouraged.

by the promises of the powers at Washington, he yielded to their persuasions and accepted the Ohio field. Furnished with a check for special exigencies, by that admirable tape-cutter, Colonel Thomas A. Scott (for it was known that the quartermaster at Cincinnati was without funds), Mitchel took a train one Sunday evening and sped again towards the Headquarters of his Department.

III.

A LIMITED DEPARTMENT.

UP to this time there was really no Confederate force in the whole of Kentucky which would have excited the apprehension of any one, had the real state of Confederate affairs been known on the Ohio River. Zollicoffer had a beggarly force in East Tennessee, and the Confederate general Albert Sidney Johnston, who had been placed in command of the whole Southwest, in order to mask his weakness, on September 17th threw forward some 4,000 men, under General Hardee, into Bowling Green. At no time during the autumn and winter of 1861-2 did this force under Hardee exceed 14,000 men; and with the force under Zollicoffer in East Tennessee constituted all the available Confederate force in the Southwest before Louisville and Cincinnati.

How the work progressed in the new department is shown in the following letters.

CINCINNATI, 22d September, 1861.

General Anderson is calling for troops with the energy of despair. He says Buckner is marching on Louisville with 7,000 men, with twenty-one fieldpieces, and he has nothing with which to oppose him. We have sent from here a regiment of infantry and a battery of artillery, and must send more immediately. Indiana has sent him three regiments, and promises more. I have ordered 10,000 men to be concentrated in Camp Dennison immediately, and shall do my utmost to place the entire department

in a state of military preparation to meet any emergency. I go this (Sunday) morning by special train to Camp Dennison, to return by half-past nine o'clock. I then go into Kentucky to examine the approaches, with a view to commence our fortifications to-morrow.

CINCINNATI, 24th September, 1861.

If I had 20,000 troops now in Ohio every man would be wanted in Washington, Western Virginia, and in Kentucky. I have urgent calls to send four regiments to McClellan, as many more to Anderson, and, on yesterday, a most powerful appeal from the legislature of Kentucky to send to Frankfort 5,000 troops with field artillery. As usual, Kentucky is found in the same predicament in which the United States was at the beginning of the rebellion: no preparation, no arms, no troops, no artillery, while the rebels are prepared with everything.

I never have worked under so tremendous a pressure as now crowds upon me. My room is thronged from morning till night. At four P. M. to-day I broke away and went up to Camp Dennison, returning in forty minutes on an extra locomotive.

I have directed all regiments in the State which are more than half full to rendezvous at Camp Dennison this week. I hope to assemble there some ten thousand men in about ten days.

CINCINNATI, 26th September, 1861.

I received your letter last evening, a little bright star in the great cloud of letters and telegrams which were handed me on my return from Camp Dennison. I was up last night till eleven, and again at work this morning at three o'clock, yet I am not in any degree harassed or embarrassed. I keep ahead of all my business, and now, at 6.30 A. M., my day's business is done. Thus by system and thorough determination to do everything *now*, I have no enemy in the rear to annoy me.

The supplies for the troops at Camp Dick Robinson were hauled over the Kentucky Central Railroad

ACKNIGHT MITCHEL.

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A MONTH without
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in October O liana, Kentucky, and Tennessee.
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troops until g Zollicoffer back into Tennessee,
little army at e Tennessee Railroad near Knox-
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Zollicoffer rganized into *corps d'armée*,
with his army all business was transacted
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On yesterday ion was countless. Mitchel
about 6.30 A. M. milarly with all. He did
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Adjutant-General ad a long line of works in
They informed defended by orderlies, but
at his office during certain

hours of the day, and the rest of the time was free to visitors in his room at the Burnet House. Often on returning to his hotel he would find his apartment so full that, standing around against the wall, his visitors covered it completely. He would commence with the first of these, transact his business and dismiss him, and so on till the room was cleared. He frequently cleared one of these throngs in half an hour.

IV.

A PROPOSED MOVEMENT.

A MONTH passed while General Mitchel continued to administer the affairs of his department. Early in October General Anderson, at his own request, was relieved from duty in the Department of the Cumberland, and General W. T. Sherman, the next officer in rank, assumed command in his stead. General Mitchel continued to organize and throw forward troops until he had concentrated quite a respectable little army at Camp Dick Robinson. These troops passed from under the orders of General Mitchel to those of General Sherman. They were placed directly under the command of General George H. Thomas and General William Nelson. They continued to look to General Mitchel for supplies, but their orders came from an entirely different source.

Zollicoffer still continued to show a bold front with his army, whose boldness was its principal efficiency. While Mitchel was chafing under a desire to push forward into East Tennessee, he was surprised one morning by the presence of distinguished visitors.

CINCINNATI, *October 11, 1861.*

On yesterday morning, as I was passing into breakfast about 6.30 A. M. (after having finished my morning's work, for I rise at five), I met the Secretary of War and the Adjutant-General of the army. My surprise was great. They informed me that they had ordered an extra train to

visit Camp Dennison to inspect my regiments preparing to enter Kentucky. I replied that not a regiment remained in camp. All were in Kentucky. An explanation soon followed, with a report of my movements for the past two weeks; and I am now ordered to take command of an expedition to seize and hold the Cumberland Ford and Cumberland Gap, and to threaten and destroy, if possible, the Tennessee Railroad. I am organizing my little army of ten or twelve thousand men with all speed, and hope to take the field in person in a few days.

I have already ordered forward some of the Ohio regiments beyond Camp Dick Robinson. I am making up my baggage trains, and shall send forward from one to two hundred horses, harness, and their wagons each day, till all is furnished.

I had the pleasure of receiving some very flattering compliments from Secretary Cameron and General Thomas for the energy put forth already; and they even went so far as to say that our efforts here in the past few weeks had effected a revolution in this region.

I am now assigned to a special service. With God's assistance the duty shall be performed, and in case success crowns my efforts I shall be in a position to exert a power in behalf of our country which I trust will work a revolution in the management of affairs.

Thus it was that the Secretary of War and the Adjutant-General of the army arranged the following order, which was issued and signed by the latter in Cincinnati, and through which it was intended to relieve East Tennessee, and attempt the cutting of one of the most important lines of communication which bound the Confederacy together.

CINCINNATI, *October 20, 1861.*

BRIG.-GEN. O. M. MITCHEL.

GENERAL: By direction of the Secretary of War you are hereby assigned to duty in the Department of the Cumberland, and will at once repair to Camp Dick Robin-

son, and there prepare the troops for an onward movement, the object being to take possession of Cumberland Ford and Cumberland Gap, and ultimately seize the railroad, and to attack and drive the rebels from that region of country.

You will report your instructions to Brigadier-General Sherman, in command of this department, and be governed by such further orders as he may give.

I have the honor to be very respectfully,

Your obedient servant,

L. THOMAS, *Adjutant-General.*

The railroad which it was proposed to cut connected Knoxville (running between ranges of mountains through Lynchburg, Va.) with Richmond. From Knoxville it passed south to Cleveland and Chattanooga. The region about Knoxville was almost entirely loyal to the Union. The distance from the advance of the Union pickets at London, Ky., to Cumberland Gap was thirty-five or forty miles. From the Gap to the railroad it was thirty miles further. The country after reaching the Gap being mountainous would be difficult to advance over, unless defended by a trifling force, or unless the object of the invading force should be secured by some brilliant stroke. But if the region about Knoxville were taken, it would sever an important Confederate railroad communication; it would close up an important avenue for the advance of Confederate forces into Kentucky; and would make a Union stronghold of about the only really "Union" territory in the Southwest.

After giving his instructions, Secretary Cameron proceeded on his way to St. Louis, where he proposed to visit the headquarters of the Department of Missouri.

General Mitchel reported his orders to General Sherman, concluding with the words, "I await your orders." No orders came. The next day he telegraphed General Sherman that he proposed to move with eleven regiments of infantry and three batteries of artillery. But for some unexplained reason he did not take the field as anticipated. There was evidently friction somewhere. Then there was an appointment between the two generals to meet at Lexington, Kentucky, and confer. General Mitchel kept his appointment, but General Sherman did not. He was daily expecting Secretary Cameron, who was returning from St. Louis and intended to visit Louisville on the way. Secretary Cameron arrived at Louisville, met General Sherman, and came on to Cincinnati. General Sherman then wrote General Mitchel that he had given orders to the troops at Camp Dick Robinson and at Olympian Springs to move, and requested him to furnish a reserve at Paris.

This ended the preparations for the proposed expedition. Secretary Cameron came on to Cincinnati, and General Mitchel reported to him that it was impossible to carry out his order. Secretary Cameron replied that he knew what had occurred, and that as General Sherman felt about it there would be no hope of carrying out the expedition with his co-operation. "Remain where you are," he said. "I will return to Washington, and in a very few days this whole matter will be righted."

General Sherman wrote General Mitchel a friendly letter explaining his failure to meet him at Lexington, which occurred from the fact that he was looking for the Secretary of War. He pointed out the difficulties in the way of the advance ordered, which

mainly grew out of sickness and poor equipment of the troops at Camp Dick Robinson.

General Thomas wrote General Mitchel that he would make all preparations, but stated that when he (Mitchel) arrived he would ask to be relieved, as he saw no reason why the Secretary of War should supersede him in his command.

General Nelson wrote a characteristic letter of complaint to General Mitchel for sending orders to the troops under his command, which Mitchel had given, not knowing of Nelson's presence. It was written with all the intensity of expression for which that officer was distinguished.

General Mitchel disagreed with General Sherman as to the feasibility of the expedition. He had equipped the troops at Camp Dick Robinson, and was thoroughly acquainted with their condition. He believed in the practicability of the occupation of East Tennessee; but under the circumstances there was nothing for him to do but wait the action of the Secretary of War. For two weeks he commanded a department without troops, during which he made constant endeavor to get some word from Washington. The only reply he ever received to his frequent appeals was the following:—

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
WASHINGTON, October 26, 1861.

Special Order No. 288.

5. Brigadier-General O. M. Mitchel, United States forces, is relieved from duty in the Department of the Cumberland, and will return to his proper command, the Department of the Ohio.

By order,

L. THOMAS, *Adjutant-General.*

Meanwhile Mitchel had forwarded his resignation.

CINCINNATI, *October 29.*

On Monday night the mail carried forward my resignation as the only thing I could do to preserve my self-respect. I had solemnly promised my troops to be with them and head them in the fight. I had been appointed to their command by the Secretary of War, the highest military authority. I had assumed command by issuing an order and directing what should be done previous to my taking the field; I had assembled around me a staff for the campaign; I had even my baggage wagons and my drivers, when, lo! my column is divided and its fragments given to other persons, my inferiors in rank. One portion advances towards the Gap and meets the enemy, while I am compelled to remain here. I appealed to the Secretary of War, who gave me the command. I waited from day to day in vain for an answer. The governor of the State made a strong appeal, private friends did the same, and yet up to this time no response has been heard from Washington. To remain longer inactive were to submit to degradation which would destroy my own self-respect and that of my fellow-officers, and so on Sunday night I sent forward a letter to Mr. Cameron and one to Mr. Lincoln, tendering my resignation and assigning the reasons. It now remains to see what will be done. I am satisfied, after the most mature deliberation, that my course is the only wise one, and in the end will be productive of good.

General Mitchel's resignation was very much regretted by the friends with whom he was in correspondence, and who were looking forward to his career in the army to be of signal service to the country. His friend Mr. Olcott wrote him that he feared he had acted hastily and unwisely, and that his action would only tend to embarrass the government. To this General Mitchel replied:—

TO MR. OLCOTT.

CINCINNATI, *November 1, 1861.*

I have your letter of the 30th ult., and give you my most hearty thanks for the deep interest you are pleased to manifest in what concerns me personally. There is no necessity for any appeal to my better nature to induce me to do right. I have no disposition to do wrong, and am certain nothing could induce me to take any step to embarrass or obstruct in the smallest degree the workings of the government. In case President Lincoln and Secretary Cameron desire my services, all they have to do is to decline to accept my resignation, and then place me in a position where I can stand in my former attitude of enjoying the confidence of the administration.

I am now again sending other regiments to Kentucky. They will go thoroughly equipped and prepared for the field, as no regiments have yet been prepared elsewhere. Everything comes under my own eye, and a team of four horses, even with its wagon and harness, I have tested by loading it fully with nearly double what it is required to move, and then driving it down and up a steep rough hill.

Everything shall be done that can be done to ensure efficiency in the regiments I send to the field. Since my new system of recruiting was introduced here, in thirty days ten thousand men have volunteered for three years, or during the war. All works well, all commend my zeal and energy. But this does no good. I stand in a position of the deepest mortification. All who meet me ask, "Why are you not in Kentucky?"

Now, I never have placed myself in a position where I was compelled to explain. I am now daily and hourly obliged to do so, and it is very humiliating, and yet up to this time I have never lost my temper. I have no temptation to lose it. I shall make no trouble of any kind, and am ready to do and to suffer anything for the only object now dear to me on earth, the rescue of our unhappy country from threatened destruction.

Trust me, I will do nothing rashly or wrong. If the

President accepts my resignation, it will be because this is best for the government. I did not write it in anger or in petulance.

While the action of the government, in giving the order or in its withdrawal, may have been excusable on the ground that the intention was for the best, the leaving General Mitchel in his embarrassing position without communicating with him, and then only by sending him the brief order to remain within the limits of his own department, was, to say the least, unnecessary; and was certainly very trying to one who saw the troops he had organized moving forward, while he remained behind. The whole affair was a revelation to Mitchel of that condition of affairs which existed at Washington from the commencement of the war, till they were righted in the spring of 1864, when the armies of the United States found a competent head in General Grant. It was to Mitchel a bitter discovery. Afterwards, when actively employed, he at times temporarily lost sight of the lesson he had learned, but as the same conditions continued to exist he was repeatedly reminded of them. He made several resolves afterwards to leave the service, but was always dissuaded.

The entrance of a general, with special instructions from the President, into the department of another commander was tried in other instances during the war, and was not found to work well. It seemed the only method at Mr. Lincoln's disposal to secure the accomplishment of certain special work which he desired; and when it failed, there was no other at hand. General Mitchel himself appreciated the difficulties in the way, but did not regard them insurmountable. He had, on October 5th, recommended

the union of the two departments under some officer to be sent out by the President. He was perfectly willing to serve under General Sherman, and would have obeyed that general's orders implicitly. But, looking at it to-day retrospectively, the whole plan of General Mitchel's entrance into General Sherman's department under special instructions from Washington, not given through General Sherman, was a mistake.

Yet, had the way been clear to the front, the sequel shows that, if successful, the expedition would have been of great benefit to the national cause. A Confederate historian¹ gives the force under Zollicoffer at the time, which would have been opposed to General Mitchel's army.

The whole force in Zollicoffer's district of East Tennessee consisted, nominally, of ten regiments of infantry, seventeen companies of cavalry, and a six-gun battery of six-pounders. But only five regiments, the artillery, and twelve companies of cavalry were in condition to move into Kentucky—less than four thousand men. There was not a quartermaster or engineer in the command, and the arms and equipments were very poor.

General Mitchel's force would have been more effective and would have outnumbered this force. The enemy were better off in cavalry, as General Mitchel had none, but in the matter of artillery he would have had a great advantage. General Mitchel's methods, as developed later on, will show that had he been permitted to perform the work, he would probably have moved with that rapidity and daring which is so often worth more to a cause than numbers.

The column which Mitchel had concentrated was

¹ William Preston Johnston.

divided, and its work during the autumn and winter of 1861 and 1862 consisted mainly in small skirmishes with the enemy, who in the mean time had grown somewhat stronger. The battle of Mill Spring was fought in January; but none of these movements resulted in an occupation of East Tennessee. All through the year 1862 the Confederate general E. K. Smith held possession there, to the discomfiture of East Tennesseans, and much to President Lincoln's regret. In August of the same year Bragg found it a convenient route through which to march into Kentucky. Then, in the spring of 1863 President Lincoln sent General Burnside to Cincinnati to carry out his original order to General Mitchel through Mr. Cameron. But by that time the successes of Bragg in the West and Lee in the East had aroused all the strength there was in the Confederacy, and the complexion of civil and military affairs had changed.

V.

KENTUCKY.

GENERAL MITCHEL was ordered to Washington, where he met the President and Secretary of War. All he had desired in offering his resignation was to cut a knot that he could not untie. He withdrew his resignation at once at the prospect of active duty, and was ordered to the West. The suggestion he had made a month previous was carried out: the departments of the Ohio and the Cumberland were united, and Brigadier-General Don Carlos Buell was appointed to the command.

Mitchel was assigned to duty in the new department. He reported to Buell by letter from Cincinnati, and was ordered to Louisville. There he was placed in command of a camp of rendezvous, while the troops that were to compose the third division of the army of the Ohio were assembling at Elizabethtown. Mitchel was to be placed at the head of this division. Early in December he was directed to proceed to Elizabethtown and assume command, and a few days afterwards to march his division to a point where a stream called Bacon Creek is crossed by the Louisville and Nashville Railroad. There he was to take position some ten miles in rear of McCook's division, then holding the advance at Munfordville.

The morning of breaking camp at Elizabethtown he wrote: —

Reveille is just sounding from forty drums and fifes and from twenty bugles all over an area two miles square. It is just coming daylight, but the moon makes it bright as day even at this early hour. The smoke of the camp-fires spreads a gauzy veil over the white tents sleeping in the moonlight, illumined here and there by an early fire. We move again at an early hour for the banks of the Green River. We seem to have reached the "sunny South." The weather is charming, clear and bright, day and night.

The same evening he encamped his division at Bacon Creek as directed, where he was destined to remain through the winter.

Mitchel has in one of his letters left an introduction to his division on Christmas morning, which, though written more than twenty-five years ago, has all the freshness of recent composition.

December 25, 1861.

Merry Christmas! — God bless you all and make you happy this day as the beginning of a long and bright future! On last evening I published an order suspending all drills to-day that our soldiers might recall the happy days that are past and remember their loved ones at home. And now, before reveille, in the bright moonlight of a beautiful morning, all the bands are out, and shouts and cheers resound throughout the entire camp. The bugles are answering each other from the hilltops, and the rousing log camp-fires are blazing in every company parade ground.

Let me tell you of our camp. The camp of my headquarters is pitched on a hill overlooking the encampment of the 17th brigade, commanded by Brigadier-General Dumont. On the right of my own tent is that of the Adjutant-General and his clerks, and of the telegraph operator. To the left are placed the tents of the aids, surgeon-general, and quartermaster-general. To the rear the tents of the escort, orderlies, cook, and servants.

In front, in a very large field, half a mile square, is spread out the encampment of the 17th brigade, four regiments and a battery of artillery.

To the left and half a mile removed are the camps of the 9th brigade, four regiments, under acting Brigadier-General Sill. Across Bacon Creek and on the opposite heights are visible in the distance the encampments of the 8th brigade, four regiments, under acting Brigadier-General Turchin.

To control this body of troops,¹ and to know exactly what is going on in every tent, I have adopted the following organization. I have detailed daily —

A commandant-of-the-camp — a brigadier-general; an officer-in-charge for each brigade, who is a field-officer.

An officer-of-the-day, for each regiment.

An officer-of-the-guard, for each guard.

The commandant of the camp controls four officers in charge. Each of these controls four officers of the day, and each officer of the day controls an officer of the guard, two sergeants, two corporals, and eighty privates.

The officers of the day visit the tents, see to the police of the camp, visit and inspect the guard, go the grand rounds at night, and keep their regiments in perfect order.

The officers in charge have an entire brigade under them, while the commandant of the camp sweeps over the entire division. This officer and his officers of the day, old and new, ten persons, report to me daily at eleven A. M. and receive my orders. Thus I am advised of everything going on in the entire encampment. Each day I ride through the camps of all the regiments and make a personal inspection.

The quartermaster-general furnishes wood, straw, forage, etc., etc., and reports daily. The commissary-general furnishes all the rations, and reports daily. The surgeon-general has charge of all the surgeons, and reports daily the condition of the sick in camp and in the hospitals. So, we have a complete system.

Thus I have introduced you to my military family, who seem to be having a merry Christmas.

¹ There were also the 4th Ohio regiment of cavalry, three batteries of artillery, and two companies of Michigan mechanics and engineers.

General Mitchel was at this time fifty-two years old. He was of an extremely wiry frame, and was possessed of wonderful endurance. His hair had lately grown gray, which made him look older than he really was. He was accustomed to ride a horse whose gait was a pace. On this horse he was all over the camps at all hours of the night and day. The guards were never certain of his coming. The men soon learned of his previous occupation, and called him "Old Stars." A sentinel who had been repeatedly visited while on duty once remarked that he "never could look up without seeing 'Old Stars'¹ coming along on his *screw propeller*."

He was a great economizer of time, and rigidly punctual. His knowledge of and attention to detail

¹ Wm. Pittinger, in *Daring and Suffering*, relates the following characteristic incident: "In camp at Bacon Creek, Ky., on a very dark and stormy winter night, the guard was placed as usual, but along about three o'clock had grown careless — more anxious to find shelter than to note everything that was stirring. Suddenly those of us who were 'off duty' received a startling surprise. The men on watch had permitted somebody to come up to our post unchallenged, and we knew nothing of it until this person was in our midst, seizing the soldiers in no gentle manner by arm and collar, and shaking them or tumbling them out of the guard tent, as he exclaimed, 'Why don't you turn out the guard?' Some of the soldiers were for resisting; but all were submissive enough when the word passed around, 'It's old Mitchel himself.' We were very soon in our places, and then we listened to a lecture, as we stood in the rain, *not* on the subject of astronomy! When the general was gone the soldiers grumbled, and wished they had an officer 'who had not studied the stars so long, that he could not sleep at night himself and would not let anybody else sleep!' but we resolved not to be caught in the same way again; and we never were! We now knew, in our division, that the only way to get along in peace with our commander was to faithfully perform every part of military duty. We exercised the soldier's prerogative in grumbling, but we loved and trusted him for all that, and would have followed him to Mobile or Savannah without hesitation, assured that he would have carried safely through what he undertook."

was remarkable.¹ He was at home in the quartermaster's, the commissary's, the adjutant-general's departments alike, and gave equal attention to the sick. Upon assuming command of his division he at once commenced to bring it up to as high a state of efficiency as possible. For a time his natural restlessness found vent in the constant drilling of his troops, or in the invention of some new method for rendering more efficient the different articles which go to make up the equipment of an army. But after he had drilled his division to a state of efficiency that would bear no further strain, he began to fret in earnest. The more he fretted the more he drilled. Many a sentry surprised before daybreak nodding on his post by the sleepless general, had he known the cause underlying such restlessness, would have committed to a warmer sphere the conduct of the war instead of the general. He never retired later than nine o'clock, while lying in camp with no enemy in his front, and was up in the morning from three to five. After dressing he would usually write his letter home.

Gun fire! 5.50 A. M. by the watch, and now the drums and fifes and bugles are sounding over the entire camp. This promptitude is the result of hard labor, and now I begin to feel that I command a division.

The commanders who held sway over the armies of the United States during the winter and spring of 1862 were General McClellan, Commander-in-Chief, and directly commanding the Army of the Potomac; General Halleck, commanding the Department of

¹ His commissary said that "General Mitchel knew everything about an army from the linchpin of a wagon to the most important implement of warfare."

Missouri; and General Buell, commanding the Department of the Ohio. General McClellan endeavored to give such directions as would cause the eastern and western forces to act in concert. There may have been a time when General Halleck and General Buell were restricted by instructions pertaining to the working out of the plan of the Commander-in-chief, but, so far away from the headquarters of the army, it is not likely that any offensive movements which either of them saw fit to undertake in their own departments would have been prevented. Early in January General Grant was ordered to make "a great fuss" about moving on his forces to Nashville in connection with McClellan's plan; but not to expose his flank, and by all means to avoid a serious engagement. General Buell proposed a combined attack on the centre and flanks of Johnston's armies. General Halleck proposed a movement up the Tennessee and Cumberland rivers, but with a force of not less than sixty thousand men. General McClellan said it would better be postponed, and informed General Buell that his own plans rendered a speedy occupation of East Tennessee and its lines of railway, matters of absolute necessity. This looked like swinging around to a point at which General Mitchel had begun three months before.

Mitchel was the next officer in rank in the department to Buell. When Buell commenced to lay plans for the Army of the Ohio, he invited Mitchel (the order came rather in the form of an invitation than an order) to come to Louisville for consultation. This was the beginning of a series of interviews which took place at intervals extending from early in January to March, 1862, when the two commanders

separated, taking different routes. During this time General Buell always treated his subordinate with marked attention; and if he did not act upon his counsel, at least spent many an evening till after midnight in availing himself of it. At these interviews Mitchel begged hard to be permitted to inaugurate an offensive campaign. At his first interview with General Buell at Louisville he proposed a plan¹ and begged the command. He went back to camp, leaving General Buell to consider it. On January 15th, he again went to Louisville to report the result of a reconnoissance he had made, and again endeavored to secure an active instead of an inactive field. Early in February, after still another visit, he wrote :

Buell gives me to understand that no immediate coöperation could be expected from Halleck, and that is one reason we are mud-bound. It rains, then snows a little, then freezes a little, then thaws a good deal, and finally everything on the surface of the ground seems liquid earth, and our cavalry horses have the scratches to such a degree that half of them are this day unfit for service. All this from being compelled to remain in the same spot.²

General Buell at this time commanded an army of not less than sixty thousand effectives. The principal part of this force was in position to threaten Bowling Green, within whose fortifications General Hardee commanded not over fourteen thousand men.³

¹ There is no record of the plan he proposed.

² There was a great deal of sickness in camp at this time, camp fever being especially prevalent. Lieutenant Henry Overman, whom General Mitchel had but recently appointed to his staff, was sent home on the sick list, and died a few weeks after.

³ General Buell largely overestimated Hardee's force. Buell proposed a plan of campaign to Halleck on January 3, 1862, in which he placed the force of the enemy in Kentucky at eighty thousand men.

At the time the foregoing was written General Grant was within ten days of the capture of Fort Donaldson. Singularly enough, "no immediate coöperation could be expected from General Halleck," and yet General Grant was on the eve of the first important success of the war, a success that laid open all the territory lying before General Buell from Munfordsville to the Tennessee River.

On the 6th of February General Grant captured Fort Henry, and on the 8th informed General Halleck that he was going to take Fort Donaldson. A day or two later General Mitchel was again called to Louisville. When he returned to camp he had an order to advance.

WASHINGTON, *February 12, 1862.*

MY DEAR GENERAL: . . . We are looking for great things from the Army of Kentucky. It is deplorable that you were ever recalled from your movements in East Tennessee. But that mistake, as well as many others, must be made good by future achievements.

Yours very truly,

S. P. CHASE.

VI.

BOWLING GREEN AND NASHVILLE.

THE third division marched ten miles to Munfordsville, on Green River, where McCook's division was encamped, and crossing Green River on the railroad bridge, which had been recently reconstructed (it had been burned by the Confederates), encamped for the night on the south bank.

Mitchel had been so long restrained that an order to move was like a fresh wind to a becalmed sailor. Rest to him was abhorrent; motion his normal condition. General Buell had arranged with him a definite plan of campaign. The fall of Fort Donaldson, soon destined to lay open Kentucky and Tennessee, had not yet occurred, and it was expected that the Army of the Ohio would have to fight its way south. The following letter, written by Mitchel on the march, shows his pleasure at being relieved from inaction.

TO MR. COE.

CAMP MADISON, t'other side Green River,
February 12, 1862.

Your kind letter reached me as the moment so long and so impatiently looked for arrived, bringing an order for the third division to advance. On Saturday and Sunday General Buell did me the honor to submit plans and general outlines for my examination, and at noon Sunday we reached definite conclusions. At two P. M. I took the cars for camp, and at once assembled my brigade com-

manders and colonels at headquarters. This meeting was at eight P. M., Sunday night, and at seven A. M., Monday, my entire division was on the march for the Land of Dixie. We are now planted south of Green River, and I am at last in the position to which my rank entitles me. The general and myself reached the same conclusions, and our views harmonize exactly; so look out, my good friends, for moves on the theatre of war that will wake this nation from its long slumber and send a thrill of joy throughout the land.

I did *wait a little longer*, and your advice has proved to be most admirable. All I fear is a want of iron firmness and irresistible energy in the execution of the projected expeditions; for there are two, — one commanded by General Buell, the other by your friend who writes. I am, of course, subordinate and am to coöperate, and must thus make my moves after those of my chief.

The two generals were not destined to carry out their plans, which were rendered unnecessary by events soon to transpire elsewhere. Mitchel in this letter puts a cheerful face on his past waiting; but any laurels, at least, that might have been gained by an earlier movement, were not now destined to be gathered.

Twenty-two miles north of BOWLING GREEN,
February 13, 1862.

This is written from the land of "Secessia." We marched the division this morning for Bowling Green, and have advanced thus far very successfully. The morning was beautiful, the banners of the many regiments, and the brilliant pennons of the cavalry and the heavy lumbering of the artillery, all conjoined to make a splendid spectacle.

Everything has moved thus far to my entire satisfaction. The promptitude of the division was all I could desire, and the march (twenty miles) is seldom equalled in the time with so large a body of troops.

The enemy had felled trees across the road in many

places to obstruct our movements, but our pioneers, some thirty in number, with axes and brawny arms, soon swept the timber from our road. Indeed, its disappearance was almost magical.

We are now encamped about two miles south of Bell's tavern, at which place the rebels burned the railroad depot last night.

We move in the morning for Dripping Springs and then for Bowling Green.

At Munfordsville General Mitchel reported progress to General Buell, and received the following reply: —

February 13, 1862.

GENERAL MITCHEL: I have just received your despatch, and am gratified, but not surprised, at the spirit with which your troops advance. Be watchful, and be sure of what is ahead of you and on your flanks. Make good use of your cavalry. The railroad company will commence repairs to-morrow. It may not be advisable to continue them further than the tunnel, until it is certain that they might not be as useful against you as for you, which you would have to guard against. Work on the telegraph will also commence to-morrow. The workmen will require protection. Wood will have his division at Munfordsville to-morrow. My instructions mentioned Dripping Springs as the point to which you might advance for the present for discovering the movements of the enemy; but that is by no means obligatory on you, if you see cause to stop short of that. It is not intended, nor is it advisable, that you should be greatly exposed in the present stage of the plan of operations which I have in view.

D. C. BUELL, *Brig.-Gen. Com'dg.*

Received at Munfordsville, two A. M., 14th February, 1862.

These cautionary instructions do not seem to have influenced General Mitchel's subsequent movements. He knew from his scouts that the Confederates were evacuating Bowling Green. The Barren River flowed

by that city, which lay on its south bank. There was a railroad bridge across the river leading into Bowling Green, which, if burned, would require weeks to rebuild. Mitchel hoped to save this bridge and capture what stores the enemy had in Bowling Green.

On the following morning the troops were again on the march. The day was bright and the ground frozen. General Mitchel rode to a small eminence where he could see the division as it passed him. Some German regiments came along singing and keeping time to their own music. As they marched past him he spoke to them: "I hear the solid tread of noble soldiers." This salutation became a by-word among them, and to this day, when the survivors of that German brigade are formed for parade on gala occasions, or on Decoration Day, the word is passed along the line, "*I hear the solid tread of noble soldiers.*"

All day the march was continued through Kentucky, the sun glistening on the arms and banners of the troops, a welcome sight to many Union people who came to their doors to wave a welcome as the men tramped by.

There are numerous basins in this region—the region of Mammoth Cave. These were full of rain-water. The enemy, in order to deprive our troops of water while on the advance, had filled these basins with carcasses of dead animals. The inhabitants were the only sufferers. After the advance of the Union army they lost no time in removing them. That evening the division made a halt till after midnight.

On being aroused at two o'clock on the morning of the 14th of February, the little army recommenced a forward movement towards Bowling Green.

The men tramped rapidly on. As they grew tired the general sent staff officers in advance to press into service all the horses and wagons along the road for the purpose of carrying the knapsacks. As the wagons were turned out the men threw their knapsacks on them and stepped forward with renewed vigor.

It was a cold, crisp morning. A light snow had fallen, but the day was fair. Onward hurried the army, each hour reducing the space between itself and Bowling Green. Presently a few prisoners were brought back from the head of the column, where the cavalry was now pushing forward at a gallop.

They were asked, "Had the enemy burned the bridge?"

"Yes. It was fired at one o'clock this morning."

At last the bank of the Barren River is reached, and beyond are the hills, frowning with deserted fortifications. Between them lies the city, and plainly in front of all, the smoking ruins of the bridge. But there on the right is the railroad depot, and a train standing ready loaded with the last of the enemy's supplies. A battery unlimbers, a gun is pointed at the locomotive by the captain, and a shell goes directly through it. That train never left the depot. Far up on the hills are the last of Hardee's troops, filing on further down into Dixie, while the citizens in Bowling Green are in their cellars to avoid the shells.

The history of the advance on Nashville might be far better told than in the hastily written accounts which General Mitchel gave his family; but there is a charm in the minuteness of pictures in a letter written on the ground at the time of important events which the most elaborate history does not possess.

BOWLING GREEN, *February 21, 1862.*

Colonel Scott, assistant secretary of war, and General Buell arrived in Bowling Green last evening, and are now with me at my headquarters. We hope to advance every day on Nashville, but General Buell holds back and remains undecided, as he did in Louisville. The railroad will be finished in a few days, and then to reach Bowling Green will be a matter of a few hours from Louisville. The railroad from here to Nashville is now uninjured, and I am begging General Buell to permit me to advance for its protection. There is an important tunnel forty miles from here which is arched with timber, and can be destroyed by fire in an hour by a single hand. This tunnel must be preserved, and why the general hesitates I know not.

We have been for two days battling a great flood in the Barren River, which has submerged our ferry rope and has given us all sorts of trouble; but to-day we expect two steamers from Green River, and when they arrive we will be quite independent of all ropes and ferries.

In my judgment Nashville can as readily be taken as was Bowling Green. I have a locomotive captured from the rebels, and a train of fifteen cars picked up along the line. I can transport a thousand troops, and will have a second locomotive in readiness for the track to-morrow or Monday.

While noting the influence exerted by General Mitchel to induce General Buell to let him go to Nashville, it may not be amiss to glance at another influence drawing Buell in another direction. After the capture of Fort Henry, General Halleck telegraphed General Buell (on the 15th of February):—

To move from Bowling Green is not good strategy. Come and help me take and hold Fort Donaldson and Clarksville and move to Florence, cutting the railroad at Decatur, and Nashville must be abandoned precisely as Bowling Green has been.

principal sections were found, and on Sunday we thousand men all day, and in the evening two lo passed all the bridges but one.

This was about two miles ahead. After dark, Scott, Colonel Smith, and myself, with about took down the locomotive with two carloads of pitch into the water, to form a foundation on which our pier of crib-work. We lighted five fires of which we found in large piles close at hand. these fires were in the creek right and left, and o sides of the stream. The fifth was on the railro on a lofty pile of wood covered with broken st nine o'clock Captain Prentice arrived, and my b Simon came with a great basket of provisions fo and in five minutes after, lighted by five blazing artist would have had before him a fine pictu Assistant Secretary of War, the General, his Adj Aid, and the jet-black Simon, all in a group, with cent lights and shades.

Monday I left the train and on horseback rea head of my division on its way to Nashville. I w by the boys with lusty shouts. I moved to with or two of Nashville, and then finding my artillery on the bank of the river, and my cavalry posted, I to a house selected for my headquarters. Soon Buell and the Secretary came up on their horses w escort and took their supper with me. They then their own quarters, half a mile nearer the city. the committee of citizens led by the mayor waited eral Buell and myself, and the formal surrende C. S. A. property was made.

So here we are, the campaign ended, Bowling and Nashville ours, and nobody hurt.

Nashville is on the south bank of the Cumk: River. Again, as at Bowling Green, the ruin fine railroad bridge stared the advancing ar the face.

VII.

EPISODES OF WAR.

THE Confederate General A. S. Johnston retreated from Nashville through Murfreesboro, Shelbyville, and Fayetteville to Decatur. It was a middle route of three different routes south, the other two being, the one between Nashville and Chattanooga, and that between Columbia, Pulaski, and Decatur. It has been said by his biographer that his object in taking this middle route was to intercept Buell in case he advanced by either one of the three routes ; though if Buell had advanced with his whole effective force of some fifty thousand men, or even half of it, General Johnston would not have been very well prepared to resist him with only seventeen thousand men. It is more probable that General Johnston was hurrying to form a junction with Beauregard, without much thought of resisting Buell.

General Mitchel was riding one morning at the head of his staff through the streets of Nashville. His force had only begun to enter the city.¹ There

¹ Mrs. Polk, the widow of ex-President Polk, lived at Nashville in the family mansion of the Polks. General Mitchel's division having first entered the city, Mrs. Polk sent a request that he would call upon her. It was the morning of the entry of the troops, when everything was in confusion, the city having been in a terrible condition consequent to the withdrawal of one army, and its citizens frightened at the prospects of occupation by another, that General Mitchel, attended by two of his staff, rode up to Mrs. Polk's house. The widow had

of artillery, to rout out a gang of freebooters commanded by a real Dick Turpin of a fellow known as Captain Morgan. He is the same man who burned the Bacon Creek bridge long ago, and burned a steamer here at Nashville the day we entered the city directly under our very eyes. He stopped Judge Bryan a week ago, to whom I had given a pass, and demanded it as a United States officer, and the judge very innocently handed him the pass, when the captain politely informed him who he was, and remarked that he would deliver the pass to General Mitchel in person.

After crossing the creek which flows at the foot of the range of hills on which we are encamped I met two officers of my division, and halting them asked why they were outside our lines. They replied that they were taking a stroll, as it was a pleasant afternoon, and did not know that they were violating orders. I told them to return to camp, and never to cross the creek again without a written pass from headquarters; that Morgan would pick them up one of these fine days and run them off to Dixie. We rode on about a mile beyond this point, when we found three wagons with forage in the road, with neither horses nor drivers. I was somewhat surprised, especially as the corn-sacks were open, and the corn scattered on the ground. I presumed the drivers had got drunk in the city and were off at a brewery on a regular spree. Some three hundred yards further I found more wagons in the same plight, and the corn-sacks on fire; and looking forward I saw more wagons and some horses and drivers in confusion; and beginning to suspect trouble I sent one of my orderlies at a full gallop ahead to discover the meaning of all this confusion. In a few minutes he returned full speed, reporting that Morgan and his men had just captured the entire train of wagons, horses, their guards and drivers, and that Kennett's cavalry had been surrounded and taken. This story was so monstrous and incredible that I told the orderly he had been hoaxed, and rode forward myself to learn the facts. I was hailed by two gentlemen on the inside of the Insane Asylum grounds, one of whom was an old gentleman who asked if I were not General Mitchel. I answered

affirmatively. "Then," said he, "for God's sake stop. Morgan has just swooped down, and has carried off a hundred of your horses and all the drivers; and if you go further he will capture you!"

Learning these facts, there was not a moment to be lost. I directed one orderly to go at full speed to Colonel Kennett's camp, two miles distant, and order him to turn out his entire force, and fly to the rescue of his captured men, and try to head off Morgan in his efforts to escape with his prisoners and booty to Murfreesboro. The other orderly was sent back to camp to turn out all the cavalry. N—— flew like lightning with orders to the two most distant brigade commanders each to turn out a regiment, while I galloped to the headquarters of General Dumont, gave him the facts in two words, and directed him to turn out his cavalry and a regiment of infantry. The general looked at me in amazement, and lifting his hands exclaimed, "Good God! Captain Braiden, my aid-de-camp and son-in-law, must be lost!"

The order given, I turned my horse's head and dashed up the hill to the quarters of the 9th Brigade. I found Colonel Harris of the 2d Ohio in his tent, gave him the facts, and shouted at the top of my voice to the boys to seize their rifles and form their companies instantly. In a moment the long roll was beating,¹ and in five minutes the cavalry and three regiments of infantry were moving at double quick.

We put spurs to our horses and rode Jehu-like to the scene of the capture. My orderly had reached Kennett's camp, and the cavalry were already coming down the road. My mounted artillerymen, acting as cavalry, came up. I sung out for some one skilled in following a trail, when out darted three noble-looking fellows. "There," said I, "boys, are the tracks of Morgan's horses. Here they threw down the fence and, taking to the fields, have fled to the woods with their prisoners. Follow like lightning and

¹ Such precautions were in order, but it is probable that General Mitchel wished to test the rapidity with which his command could be turned out.

rescue our brave boys!" A shout went up, and away they darted. The infantry was posted to support the cavalry in case of an attack from heavy reinforcements; one regiment was sent up the road, a second down the turnpike, and a third in the direction taken by the enemy.

Upon inquiry it became certain that Captain Braiden was captured, and that one of my escort, a most excellent man, was with the train and had doubtless fallen into the hands of the enemy; also a sergeant of cavalry and a few privates, with some twenty teamsters and about eighty or ninety horses. The enemy had only about an hour's start, and I felt sure we should overhaul them and recover our horses, if not our officers and men. Having arranged everything I returned to camp.

About nine o'clock messengers began to arrive. First some mules and horses were received, and our boys were hot on the chase. Then news of the recapture of some of our drivers. Then came another announcing the taking of all our horses and drivers, and the rescue of Captain Braiden, the sergeant, and my orderly; and, finally, in came a guard with two prisoners taken from the enemy, and a note from Colonel Kennett stating that a wounded man was prisoner in his hospital, and that wounded man was a grand-nephew of Nicholas Longworth of Cincinnati, the son of Alice Carneal, — young Warfield of Mississippi.

About ten o'clock in came General Dumont with his staff and the recaptured Captain Braiden, — the happiest set of fellows you ever saw, — thanking me for his liberty and life, and giving me a most thrilling narrative of his capture and escape.

I will go out this morning to visit young Warfield, the grandson of my old friend, Major Carneal. What marvellous events this war develops!

These men declared that they knew and had seen me, described my horse and trappings, and told Captain Braiden he would have the honor of an introduction to General Hardee last night. We were too quick for them, and I hope to hear of more prisoners this morning. Here I send you a tale of the civil war. Get a copyright and make your fortune.

March 11, 1862.

The only enemy who seems to be of any account is Captain John Morgan, the Dick Turpin of Tennessee. I have determined to take him, if possible, and on last evening I started one of my rangers (Corporal Pike) to "spy out his camp." The boys took the greatest interest in disguising him. One furnished a coat, another a pair of trousers, I the citizen's saddle and bridle, Captain Loomis the horse, Captain Prentice the money (Tennessee, of course), and so we fitted out our spy and started him about eleven o'clock last night. He is probably in Morgan's camp by this time. The only trouble is in keeping the freebooter in one spot long enough to catch him; but my scout has orders to return to me, in case he finds the camp, like a streak of lightning, and as my expedition is all planned we will fall on friend Morgan like a clap of thunder out of a clear sky.

Corporal Pike was a character. He would go anywhere in the enemy's lines, usually averting suspicion by his coolness and daring. He would sit and talk by the hour about his adventures, mingling truth and fiction in such a way that one who listened to him would laugh at what was supposed to be the enormity of his fabrications. But experience proved that there was as much truth as fiction in what he said, and when he came to talk to the general he reported facts. General Mitchel found him invaluable, and from this first service in learning of Morgan's whereabouts, till Pike's last scout for him, General Mitchel constantly relied upon him for information.

CAMP ANDREW JACKSON, *March 14, 1862.*

I can now give you the second chapter in our "Romance of the Civil War." On night before last Pike returned, and was brought to my tent a prisoner by the guard about midnight. He had penetrated Morgan's lines, passed all

his pickets, and had actually passed seven miles beyond Morgan's headquarters at Murfreesboro. He had been his fellow with all his troopers, learned precisely where all the picket lines were posted, and the roads to the three fords. In short, he came back fully prepared to guide an expedition to capture the freebooter and his band. At two P. M. yesterday I issued my orders for Kennett's cavalry, a section of artillery, and twelve hundred riflemen, to march for our outposts, about seven miles from our camp on the road to Morgan's headquarters. The men did not know on what duty they were ordered, but imagined that an attack was anticipated on our pickets. I ordered sixty teams with wagons to follow, "to haul in a large amount of rebel baggage we had discovered in the road."

Just at nightfall the infantry were halted on the turnpike, the wagons drove up in front of the line, and the men were ordered to fill them. Twenty in each just took twelve hundred men. The cavalry now advanced to the front, then came the artillery, then the wagon-train of riflemen, and last, a rear guard of mounted artillerymen. I had sent forward my mounted escort with orders to permit no one to pass going south, and to arrest every one who appeared on the turnpike.

All our plans were complete, and the expedition was actually on the move, when an orderly came galloping up to me at full speed, announcing that my escort had been encountered by a flag of truce from the enemy. This was most extraordinary intelligence. I went forward, accompanied by the commander of the expedition, the chief of cavalry and artillery, when, in the "misty moonlight," we discovered a white flag borne by a mounted officer, escorted by about twenty mounted men. It proved to be Captain John Morgan himself and a lot of his rangers, with a letter to me from General Hardee returning a citizen teamster who had been carried off by Morgan, and some letters from a few of our pickets they had captured at different times.

Here was a most singular state of affairs. We were near a house. I dismounted, went in, read the letter, sent

for my chief officers, and I finally determined to send to General Buell. It was twelve miles to ride, but Colonel Kennett undertook to go and return in two hours. I then called in Morgan and Colonel Wood, who was also in his party, and announced to them my determination, and informed them that with my escort and two companies of cavalry we would ride forward to the Lunatic Asylum, some six or seven miles towards Nashville. The rebels had thus an opportunity to see the whole force which had been prepared to take them. The colonel and Captain Morgan rode, one on each side of me, and on seeing my formidable preparations expressed themselves as very fortunate in their escape. The large force mounted in wagons attracted their attention especially. That was to them a new feature in warfare.

We passed on our march some three thousand magnificent soldiers, and Wood and Morgan both expressed their surprise at our admirable appearance. In two hours Colonel Kennett returned from General Buell. The officers in the mean while had supper prepared at the asylum. Colonel Kennett was directed to detain them till about daylight, and then escort them outside our lines. The expedition was abandoned and thus a most capital adventure spoiled.

Morgan and his men were hospitably entertained by those in charge of the asylum, and at daylight were sent out of the lines as General Buell had directed. They soon after commenced a fusillade on our pickets as a parting salute.

The treatment Morgan received at this time from General Mitchel was never forgotten by the former. Morgan then either had no commission from the Confederacy, or a roving one, which no one was bound to respect. He came into our lines under flag of truce, in citizen's clothes, and no sooner were the preparations for the expedition perceived than one of the troopers of his band broke away, galloping

towards Dixie with all his speed. It was evident that the object was to convey news of the intended expedition. The trooper was caught and brought back to General Mitchel. Morgan disclaimed a connection with the man's movements, but acknowledged that he had violated the flag of truce, and told General Mitchel to take him and do with him what he liked. With this incident, and Morgan in citizen's dress, it would not have required any diligent search for pretexts to detain the whole party. General Mitchel, with characteristic dislike for any pet means of warfare, told Morgan to take the troop back with him, as he had no use for him.

Morgan rode with his band through the Union lines to Gallatin, some twenty miles northeast of Nashville, and, as was usual with him on entering a town, first took possession of the telegraph office. He then sent the following despatch to General Mitchel: —

GALLATIN, TENN., *March 17, 1862.*

GENERAL: An opportunity offering here of communicating directly with you, we gladly avail ourselves of it, for the purpose of thanking you for the kind courtesies and friendly reception with which you honored us but a few days since. We look back to our visit to the asylum as to us one of the most agreeable remembrances of the war. Entertaining some doubt as to the accuracy of the information given us regarding the aspect of affairs generally in the West, we have ridden over to this place to obtain the latest advices. If any mischief has been committed, or property destroyed, I beg leave to assure you it was occasioned by military necessity. We had intended paying you a visit within the next few days, but upon reflection concluded to try some less "wide-awake" command. We should like General Buell to know that, though we have possession of this city, the citizens will not be in the slightest

est degree interfered with or prevented from pursuing their ordinary vocations. Before we advance upon Nashville we purpose notifying General Buell, in order that he may make such provision for the safety of the women and children as humanity would suggest.

Very respectfully, your obedient servants,

ROBT. C. WOOD, JR.,

JNO. H. MORGAN,

Confed. Cav.

Five or six weeks after this, when General Mitchel was much further south, a son,¹ who served on his staff, was returning to camp from sick-leave. He stopped for dinner one day at Pulaski, Tenn., and while at table, hearing a clatter of horses' feet in the street without, and going on to the front porch to discover the cause, found himself in a twinkling surrounded by a squad of Morgan's cavalry. Twenty pistols were levelled at his head, and as many voices called on him to surrender. He was taken to Morgan, who asked him his name.

"Mitchel."

"A relation of General Mitchel?"

"A son."

"Upon my word," said Morgan, "I would not have captured your father's son for the world had I known it. However, it can't be helped now. I must send you south. Have you any money?"

Captain Mitchel informed him that he was the possessor of a few greenbacks.

"That won't avail you in the south," said Morgan, standing up for Confederate money. "Here's \$500 in good Confederate bills. Take it along."

His kind offer was declined; whereupon he rode

¹ Captain E. M. Mitchel, died 1873.

off to attack a wagon train laden with rations for General Mitchel's army, which was passing near him and which he had been watching for some time. He captured the train and with it so many prisoners that he was obliged to parole them, and Captain Mitchel was suffered to proceed to camp.

It happened that General Mitchel had not been idle during the few months previous to this episode and upon entering a southern town, where he was not expected, at sunrise one bright morning, found a younger brother of Morgan's, who had been wounded quietly sleeping, and captured him. When Captain Mitchel walked into camp a prisoner on parole, he found there this brother of the man who had captured him. Exchange being fair play, young Morgan was sent home to Lexington, Ky., by General Mitchel's permission, to recruit his health, and wrote to his brother requesting him to effect the exchange. This was done, and the two young men released from their parole.

These episodes with Morgan were among the pleasanter of the various incidents of the war. Daring men are apt to conceive a special liking for each other, and there were many things to inspire Mitchel and Morgan with mutual interest. Mitchel moved with a regularly organized force—as will appear later on—much in the same fashion as Morgan moved with cavalry. Both men gave their lives to the cause for which they fought. Morgan, after passing through many daring adventures, undertook a raid through Ohio. He was captured and confined in the Ohio state penitentiary. From there he escaped, and returned to the field. General Basil Duke, who has written an account of Morgan's ex-

plots, says that he never was the same man after this capture. His spirit had been in a measure broken, and much of his former confidence had left him. He was killed not long after in Tennessee. Meanwhile he had risen to be a brigadier-general in the Confederate service.

VIII.

MURFREESBORO.

MEANWHILE General Halleck had been placed in command of all the armies of the West. General Grant was at Pittsburgh Landing, and General Buell received orders to advance the Army of the Ohio to Savannah, a point about ten miles distant from Grant's command, where it was intended that the two armies should form a junction.

It was necessary that there should be a portion of the Army of the Ohio left as a corps of observation of that territory extending from Corinth through Chattanooga to Knoxville, and that a garrison should be kept for Nashville. General Dumont was transferred to the command of the troops at Nashville, General W. H. Lytle succeeding to the command of Dumont's brigade. It was determined to leave Mitchel with his division as a corps of observation, and he was advanced to Murfreesboro.

General Mitchel moved on south, breaking camp at Nashville on the 18th of March. One of his staff being threatened with typhoid fever, another member was directed to remain with him at Nashville, and if necessary send him north. The officer entrusted with the sick comrade placed him on a steamer and sent him to Cincinnati, where he would be the better prepared to endure a long sickness with which he was threatened. Meanwhile General

Mitchel's division had moved thirty-five miles south. To go through a hostile country alone, in which guerillas lurked in every wood, was not a very safe proceeding. Learning at General Buell's headquarters that a mounted escort was to go through with despatches, the aide was about to join them, when Corporal Pike appeared. General Mitchel had sent him to get news of the sick member of his staff. The aide determined to go through to the front with Pike. The despatches were entrusted to his care, and the two started about dusk to ride thirty miles before morning.

After scouting their way Indian fashion during the night, they stopped at a farm-house for breakfast. At the table sat a tall man with a long, brownish beard, eating in silence. No joke or banter could elicit either a smile or a word from this silent, strange-looking man, who neither seemed to be a citizen of the country nor connected with the army.

After breakfasting, the aide and Pike mounted their horses and proceeded to camp. Upon riding up to General Mitchel's headquarters, who should be standing before the general's tent but the silent man with the long beard. He proved to be Mr. J. J. Andrews, who not long afterwards led a party of daring men into the South for the purpose of capturing a railroad train.

Mr. Andrews had proposed to General Buell at Nashville the following plan: He offered to take a small party of soldiers, disguised as Southern citizens, into Georgia. A friend of his was then a locomotive engineer on the Georgia State railroad from Atlanta to Chattanooga. His design was to board his friend's train, ride to a favorable point from some

station west of Atlanta, on towards Chattanooga to capture the train or the locomotive, and, cutting the telegraph wires and burning the bridges behind him, to speed on through Chattanooga and Bridgeport to the advance of Buell's army. General Buell sent him to General Mitchel with an order that he be furnished with volunteers to the number of eight men (if volunteers could be found), and he was now at Mitchel's headquarters at Murfreesboro, arranging for his expedition. Volunteers were found, and Andrews started on his mission; but it was not successful. Andrews failed to find his friend the railroad engineer, and returned with his party without accomplishing anything. He afterwards made another attempt, which will be mentioned further on.

General Mitchel marched his division from Nashville to Murfreesboro, a distance by the road of forty-five miles, in two days. Murfreesboro was a beautiful Southern town on the banks of Stone River and was then surrounded by a noble forest. General Mitchel rode into the open square in the centre of the town in advance of his division, attended only by his staff and his escort, consisting of some twenty cavalrymen. A knot of citizens had gathered on the sidewalk, and were idly gaping at the Yankee commander. Some one called out good-naturedly "Make us a speech, General!" The general, usually ready on such occasions, pointed to the head of a column of cavalry coming down the street, and replied, "There's my speech."

CAMP VAN BUREN,
MURFREESBORO, TENN., *March 21, 1862.*

. . . . On reaching Nashville the rebels were on the march to this place, and were in great disorder. An ad-

vance then by our own troops would have scattered them like chaff, and we would have captured all their stores; but General Buell determined to wait the coming up of fifty-two thousand men. This required ten days, and then it was useless to push forward to this place, as the rebels were gone with all their supplies, leaving all the turnpike and railroad bridges a wreck behind them. Now we are compelled to halt and rebuild these railroad bridges before it will be possible for us to move into Alabama.

This is a hard life, with very little in the present or future to make it endurable. Still, we must do our duty and fight it out.

Blessed word, *home!* Would that I too could fix a time for my return to the bosom of my family once more! Alas! the day is far distant, I fear, and should it ever come there will be many sighs and tears mingled with our rejoicings.

At Murfreesboro the Louisville and Nashville railroad crosses Stone River. The ground between the heights on either bank of the river is low, involving considerable trestle-work. This work, making three different bridges, in all some twelve hundred feet long, had been destroyed by General Johnston on his retreat towards Decatur. It became the task of General Mitchel to rebuild it, as the railroad was his natural means of supply.

He at once put Captain Yates and his two companies of Michigan mechanics and engineers at work, detailing such men as were skilled in this kind of construction from among the other troops of the division to assist them. The building of this bridge so well illustrates Mitchel's energy and rapidity, that an account given by himself to one of his friends is entered here in full. General Mitchel kept the superintendence of the work in his own hands. He

past two weeks has brought up their health and spirits, and they are ready for any service. Soon they will discover that all their efforts are useless, their spirits will flag, idleness about camp will engender disease, and in a short time our hospitals will be filled.

I will quit writing and go to bed. The day is just breaking, but with it comes no brightness to me.

Murfreesboro was the residence of a number of retired Tennesseans, and contained some very pretty women, from among whom several Union officers afterwards chose wives. The lady to whom John Morgan was engaged lived there at the time. Her father was one of the most prominent men of the place, and though his sympathies were largely with his brethren, often came to General Mitchel's headquarters, behaving with considerable discretion. He invited the general and his staff to call at his house, and General Mitchel had the honor of a few pleasant words with the *fiancée* of the man who was so interested in his wagon trains, and whom he was so anxious to catch.

After the battle of Stone River, which occurred more than a year later, Murfreesboro was a sad sight. The splendid trees were all felled to make way for the sweep of shot and shell; and immense armies encamped, first Confederate and then Union, all about it.

IX.

HUNTSVILLE.

WHILE his army was marching to join Grant, Buell took up his headquarters at Columbia. From there he sent his last instructions to General Mitchel at Murfreesboro. These instructions give so clear a statement of the disposition of troops left to operate on the line entrusted to General Mitchel that they are given entire.

HEADQUARTERS ARMY OF THE OHIO,
Camp near COLUMBIA, TENN.,
March 27, 1862.

BRIG.-GEN. O. M. MITCHEL,

Commanding Third Division, Murfreesboro.

GENERAL: I have already informed you in conversation of certain dispositions which affect your part of the campaign just commencing. These dispositions, for the present, you will remember, place your division finally at Fayetteville; Duffield's brigade, with a battery and battalion of cavalry, at Murfreesboro, with a detachment at Lebanon; Negley's brigade, with a battery and battalion of cavalry, at Franklin; and a division at or in front of Columbia, to act to the left in conjunction with you, or to the right, according to circumstances.¹

These arrangements have in view convenience either to advance against certain positions of the enemy, or to oppose any offensive move on his part. Excepting your own division the troops are not strictly under your command, but they will become so unless otherwise ordered, in

¹ The Seventh division of the Army of the Ohio, under General Morgan, was in Eastern Kentucky.

case of an advance of the enemy towards Nashville, which renders their concentration or united action necessary. And they will be so instructed. Besides the troops above enumerated there will be a regiment near the city on the Murfreesboro road, a regiment at Franklin, and one at Columbia, with about a regiment of cavalry distributed at different points as guards to depots and roads.

It is not necessary to point out to you how this force can be concentrated either for an advance or for defence, if necessary. It can be marched from twenty-five to thirty-five miles over good turnpikes, concentrate at Shelbyville, or in twenty-five miles more for portions of it, at Fayetteville or at Columbia, or Pulaski; or still further in advance at Huntsville or Decatur. These points are of more or less importance in consequence of the routes they command; and some of them are on streams — Duck River and Elk River — which in high water would have some strength as defensive lines, though in the dry season they are fordable at many points. Fayetteville is also important as affording by the branch railroad from Decherd a good depot for operations against any position north of it on your line. I do not think it necessary to do more than suggest these general features to you. You will understand well how to take advantage of them, or guard against them, according to circumstances.

Move one of your brigades, with a battery and the principal part of your cavalry, at once to Shelbyville, to which point it is desirable to complete your railroad transportation. As soon as the bridges you are at work on are so far advanced that you can leave them, carry forward the principal portion of your division to that point, and throw a brigade and strong force of cavalry forward to Fayetteville. As soon as possible move the principal part of your division forward to Fayetteville. From this position the railroad at or beyond Decherd must be carefully watched, and so must all the routes in front of you. Endeavor in connection with these movements to secure some of the stock on the roads north of Decherd by a rapid movement of cavalry through Winchester to that point. Inform yourself

by all possible means of the position, movement, and strength of the enemy; preserve thorough discipline and instruction in your command, and keep it in readiness at all times for any service. Purchase your supplies in the country as far as possible.

Very respectfully, your obedient servant,

D. C. BUELL, *Brig. Gen. Comd'g.*

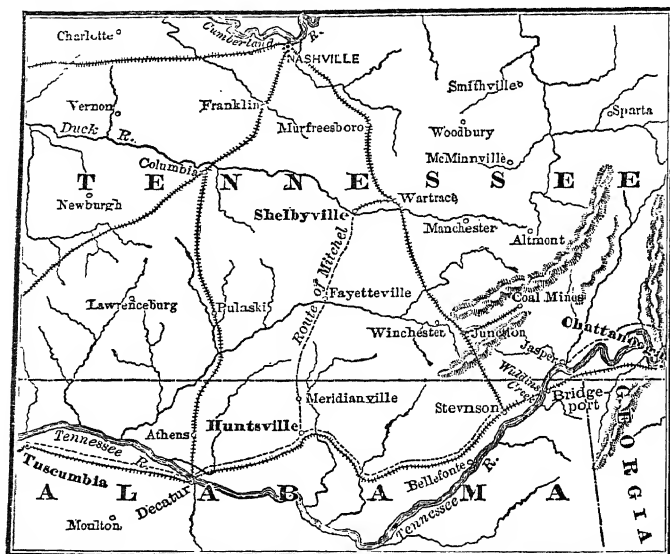
P. S. — Let me know what progress you are making.

General Mitchel moved his division to Shelbyville. In this place there was considerable Union sentiment. The general took up his quarters for one night, before locating his headquarters' camp, in a building on the central open square of the town. The spring comes up earlier in Tennessee than in the North, and already the weather was balmy. About ten o'clock at night, while the town was quiet and dimly lighted by a young moon, some voices were heard out in the square singing "The Red, White, and Blue." It was the first time such an air had been heard except from the regimental bands, and was refreshing to the officers who listened.

At Shelbyville General Mitchel was obliged to wait the finishing of the two bridges in his rear (mentioned above), over which he had no control. His objective point in the campaign was the Memphis and Charleston Railroad. While waiting for the completion of the bridges behind him he concluded to make an effort to capture and burn the bridge over the Tennessee River at Bridgeport, a point some sixty miles southeast of Shelbyville. General Mitchel, having informed himself of the strength of the guard, sent a cavalry force with one gun through the Cumberland Mountains, which was to surprise the bridge guard, drive it away, burn the bridge, and

retire. The expedition proved a failure, and General Mitchel found himself obliged to pursue his plans without this auxiliary.

From Nashville two railroads extend south to the Memphis and Charleston Railroad, the one through Franklin, Columbia, and Pulaski, forming a junction



THE ROUTE TO HUNTSVILLE.

at Decatur; the other through Murfreesboro, Wart-race, Tullahoma and Decherd, forming a junction with the Memphis and Charleston road at Stevenson. These three roads form a triangle, the northern angle at Nashville, the eastern at Stevenson, and the western at Decatur. The Tennessee River runs south of the Memphis and Charleston Railroad from Bridgeport, a point eleven miles east of Stevenson, to Decatur. The bridges at Bridgeport and Decatur were

both very large, and if destroyed, it would have taken several months to rebuild them, and the country between them might be occupied by an invading force with a front protected by the Tennessee River.

The Memphis and Charleston Railroad was the main artery between the East and the West. At Cleveland, a point some twenty miles east of Chattanooga, it branched, one fork running north through East Tennessee (the road General Mitchel proposed to cut in the fall of 1861), while the other fork passed south through Dalton to Atlanta. Thus Confederate troops could be passed from the eastern cotton States or from East Tennessee to the West, and *vice versa*; and at short notice a considerable force might be concentrated at any point along the line. From Shelbyville, a point lying within and near the centre of the triangle named, General Mitchel looked down on this coveted territory: Stevenson to his left, Huntsville directly south, and Decatur to his right. The limited force under his command, the rapidity with which the enemy could concentrate troops on the railroad threatened, rendered its occupation very hazardous. There were two railroad lines, by either of which he could advance: to Stevenson or to Decatur. If he took either of these routes, the enemy could cut him off by the other. From Shelbyville to Huntsville there was no railroad. His railroad communication was complete to Shelbyville, which he could make his great depot. South of this to Huntsville, the nearest point on the Memphis and Charleston Railroad, there was a gap of fifty-seven miles over which supplies would have to be hauled by wagon. It would need one hundred and ten wagons to feed the army. There were but eighty in the division

train, but by using the regimental trains this method of supplies was practicable.

The machine shops of the road were located at Huntsville, and it was supposed that considerable rolling stock was kept at that point. If by a forced march he could surprise Huntsville, cut the track on each side of the city so that no rolling stock could be taken away, with captured engines and cars he might quickly transport his troops to Stevenson and to Decatur, and seizing these points insure comparative safety. The plan was a good one, but it required celerity, and the failure of any one of its three points might lead to disaster.

General Mitchel concluded to undertake it. He made a remark to one of his staff about this time, which gives a clue to the failure of so many good men, and scientific, and brave soldiers, as generals. "When a general has made up his mind to an undertaking," he said, — "has formed his plans — has issued his orders to his troops to be in readiness, — then when there is but one word to say, 'Go,' it is the hardest thing in the world to say it." The difficulty did not master him on this occasion.

Mr. J. J. Andrews came into camp at Shelbyville and reported the failure of his expedition. He brought his men back safely. Having missed his friend, the locomotive engineer, he did not make the attempt. He found General Mitchel about to move south. General Buell was at Columbia. Andrews did not go to Columbia to report his ill success to General Buell; he conferred with Mitchel, and between the two a second expedition was concocted. General Buell was now too far away to warrant a laying before him of the details of this second expe-

dition. Whether General Mitchel regarded it simply as a renewed attempt to carry out Buell's original order, or whether he took the responsibility of furnishing men for a new enterprise, does not matter. Andrews was furnished with twenty-two volunteers, and left Shelbyville secretly the day before Mitchel moved from the same place.

Mitchel sent Corporal Pike down along the route by which he proposed to advance. Pike rode into Fayetteville one evening some thirty miles in advance of the Union pickets, dressed in the uniform of the 4th Ohio cavalry, rode up to the hotel, dismounted with perfect composure, and directed that his horse should be fed, and entering the hotel, called for supper. It was surmised at once by those about that he belonged to Morgan's band, the members of which were known to be in the habit of assuming Federal uniforms whenever the occasion required. They asked him to let them see his carbine. He took off the cap and handed the weapon to them, and went on eating his supper. After he had refreshed himself, he mounted his horse and rode on south. During the trip he heard of the battle of Pittsburg Landing. On a Sunday morning he rode up to a little country meeting-house, and with his horse's head inserted at the door, called out to the clergyman who conducted the service that a battle was going on at Pittsburg Landing, and he had been sent out in search of stragglers who were badly needed in the Confederate army. He was informed by the clergyman, who discontinued the service for the purpose, that there were no such in the house. "He lied," said Pike, in telling of the episode afterwards, "for I saw two or three skulkers slip out the back door."

Pike's account was taken with some allowance, but a few days after a Huntsville paper was captured, in which the adventure was given in an article headed "A bold Yankee," substantially as he gave it, with the exception of mentioning the alleged skulkers who slipped out the back door. Pike rejoined the command on the march.

It might naturally be expected by the enemy that no advance in force could take place till the rebuilding of the Murfreesboro bridges had been effected, and that this would require a month or six weeks. Having built them in ten days General Mitchel possessed an important element of surprise. He broke camp on the morning of the 9th of April. There was not a man in the division except himself, not even one of his staff, who knew the destination of the command. He marched rapidly south to Fayetteville, some twenty miles. Two Confederate officers had been sent to Fayetteville the day before to be passed through the lines. Under the guise of seeing them safely through, but in reality for the purpose of gaining information, General Mitchel sent Lieutenant Dobb of his escort, with some twenty mounted men, through with these officers to Fayetteville. The sight of Yankee soldiers was too much for the rebellious spirit of the Fayettevillians, and the Confederate officers were obliged to sit up all night to protect Lieutenant Dobb and his men from the fury of a mob. About noon the next day, while the citizens stood about sullenly watching the entry of the Yankees, the general, at the head of his staff, rode into the public square of Fayetteville.

The division quickly passed through Fayetteville without halt. One brigade had been left at Shelby-

ville, now another was left at Fayetteville. It is hardly proper to call the force at this time a division, for it consisted of the 8th brigade, the 4th Ohio cavalry, and Simonson's battery.

On the morning of leaving Fayetteville, some citizens were brought to General Mitchel with important information.

"They have been fighting at Pittsburg Landing."

"And the result?"

"The first day the Confederates drove the Yankees to the river, where, protected by the gunboats and reinforced by Buell's army, they turned and drove the Confederates." General Mitchel stopped thoughtfully for a few moments. It made considerable difference to him which side had been defeated. Then he put spurs to his horse and rode on.

The division encamped south of Fayetteville on the night of the 9th. On the morning of the 10th the troops again took up the line of march southward. By this time the men began to suspect that this continued tramping meant a forced march, and that something was to be done.

At dusk that evening a halt was called at a point ten miles north of Huntsville. Mounted scouts in the advance picked up and brought in every person they met, in order that no information of the approach of the troops should be given. The daily mail from Huntsville, travelling along the road, was picked up, and like everything else disappeared within the bosom of the advancing army. From dark till two o'clock the command slept on their arms. This time was one of deep solicitude to the general. He did not close his eyes all night. Negroes arrested by the scouts kept coming in, and were brought

ward or forward. Finally, it dashes on and escapes. Then whistles are heard shrieking all along the track. Another tries to escape: another boom of a gun. The engineer is killed and the machine taken possession of.

On the west of the city the track-tearing party is equally successful. Not a locomotive escapes from that side. The telegraph wires are also cut.

Onward pushes the advance cavalry towards the city, some three miles distant, and with it the general and his staff. Sashes are thrown up along the road, and citizens in their night clothes look out on the rising sun and on the beautiful country covered with the verdure of early summer, and on the less peaceful cavalry dashing rapidly along the road. They have been awakened by the guns in the locomotive hunt, and are wondering in a bewildered manner what it all means.

The advance cavalry enters the town and makes straight for the telegraph office. A detachment seizes the depot, making prisoners of several hundred Confederate troops who are caught passing through the city. They are marched off under guard. Then comes one regiment of infantry after another, marching into town with drum and fife, playing "Yankee Doodle."

The city had been captured without the use of a pound of powder, except to shoot engines. At the count, the game-bag was found to contain fifteen locomotives and eighty cars.

General Mitchel had marched his men fifty-seven miles in forty-eight hours. But by their rapid movements they had possessed themselves of more comfortable means of transportation for their future

operations. In their next move they were whirled along after a locomotive.

Now came the second part of the plan. General Mitchel at once placed Captain Yates in charge of the railroad as superintendent, and ordered him to make up two trains without delay, the one to carry troops to Stevenson, the other to Decatur.

There was no want of cars and such appurtenances as are required to operate a railroad. The road was in fine condition; the depots, water and wood stations, turn-tables, engine-houses, locomotives and cars were all in prime order. The road did not cease to be operated; it simply changed hands. The workmen employed by the Confederate government, who went home the night before from their labors in the machine shops, either came back to work for Uncle Sam in the morning or were replaced by Yankee mechanics.

Colonel Turchin was placed in command of the expedition to Decatur. His train started on the evening of the occupation of Huntsville. The telegraph wires had been cut, and it was not likely that the guard at the bridge would get news of his coming. This proved to be the case. The train loaded with troops steamed over the twenty-five miles and was stopped a few hundred yards from the rear end of the bridge. Fortunately the ground was such that it could not be seen; yet it certainly would not have been suspected of being a Yankee train. The men left the cars and advanced at a double-quick to the bridge. As soon as the guard discovered them it fled, attempting to fire the bridge as it retreated across. But the Yankees were too quick for them. They put out the fire, followed the guard across the

ties of the road and the track, with a view to throwing the locomotive down the embankment. The escape was miraculous. The iron pilot was bent clean under the locomotive as if it were straw.

Late that night the general reached Huntsville, and doubtless slept a refreshing sleep.

General Mitchel's movement took place at that period of the war when it seemed impossible for the government to induce any of its commanding generals to move without elaborate preparation, and the utmost caution. Grant, a subordinate like Mitchel, was the first to break this sluggishness at Henry and Donaldson. Mitchel's move was the second change of the war from the prevailing stagnation. It was received with great delight at the North, one newspaper speaking of it as marking a "new era of generalship in this war." The thanks of the War Department were at once telegraphed General Mitchel, and President Lincoln promoted him, to date from the 11th of April, to be Major-General of Volunteers, "for gallant and meritorious services in the capture of Huntsville, Decatur, and Stevenson Junction;" and he was ordered to report his movements directly to the War Department every day.

Upon receipt of the news of his promotion, General Mitchel at once recommended those of his colonels who were in command of brigades to be brigadier-generals, and the members of his staff each and all for an advance. The promotion of the colonels was delayed till some time afterwards, and there was no law of the general government for the promotion of those staff officers who held commissions in the line.

X.

THE LOCOMOTIVE CHASE.

It is requisite to pause here in recounting the operations under General Mitchel's personal direction to sketch briefly the Andrews expedition¹ sent out to burn bridges in Georgia. This expedition has become known far and wide as the one incident of the war especially noted for romantic, daring adventure. Men had before chased each other, on foot and on horseback, in wagons, but never was a military raid made on a locomotive, and the raiders pursued over long miles of rail by an enemy similarly mounted. And thus far it is the only instance in the history of war.

There is still another feature. It has been claimed that the expedition was a part of a plan of General Mitchel of very great importance, and intended not only as an auxiliary for his own occupation of the territory he seized, but to prepare the way for the occupation of East Tennessee, without the necessity of calling for any considerable force. It has been argued that he directed Andrews to burn the bridges between Atlanta and Chattanooga, but to spare the great bridge across the Tennessee River at Bridgeport; that he would then advance upon Chattanooga over this bridge, and occupy it; while Gen. E. K.

¹ This account is based on *Daring and Suffering*, a narrative of the events of the expedition, by the Rev. William Pittinger.

Smith, threatened by General Morgan on the north, and Chattanooga being lost on the south, would be obliged to abandon East Tennessee to the vast majority of Union sentiment known to exist there at the time.

There is something so fascinating in such remarkable results to be accomplished by a mere handful of men, as to dazzle the imagination of the coldest reasoner on the military problem involved. What possibilities occurred to General Mitchel in case the expedition were successful, cannot now be known.¹ His eye doubtless swept over as broad a range as existed, but beyond the possible accomplishment of a protection from the burning of the bridges on his left, in his move on Huntsville, the matter must have appeared to him entirely contingent. Andrews's success would be Mitchel's gain. Andrews's failure would not involve Mitchel's success.

Though the possibilities of the expedition as a thread leading to a chain of great results were remarkable, the contingencies were very numerous. Andrews might return as before, without making the attempt. He might make the attempt and fail. He might succeed in burning the bridges he intended to burn, and spare the one across the Tennessee. Grant that he would succeed in doing the latter, Mitchel

¹ This expedition was of the nature of secret service, and General Mitchel died without knowing anything about the attempt as given here. He was very much moved when it was reported to him that all had been captured and hanged at Chattanooga, a statement which was not true. He never spoke about the expedition or its purposes to any of the members of his staff now living. Such connection as is now known to have actually existed between General Mitchel and the Andrews party is entirely due to the testimony and researches of the Rev. William Pittinger, who accompanied the expedition.

was at Stevenson to meet him; but it would have been no difficult matter for a Southern general to destroy the Tennessee bridge, and thus prevent Mitchel using it. Grant that the bridge could be saved to Mitchel. Then with the rebel communication cut between Chattanooga and Atlanta, if Mitchel had been suddenly reinforced with a few thousand men, considering the panic into which that portion of the country had been thrown, he might have compelled the evacuation of East Tennessee. And here arises the last contingency: would the force have been given him? Considering General Halleck's views, and General Buell's caution, it is hardly probable.

Before the starting of the expedition, W. W. Brown, who was to be the first engineer¹ when the train should be captured, was ordered by his colonel to report in person to General Mitchel in his tent. He has thus described the interview that followed:²

I handed the general a note from the colonel, which he read and was silent for a moment. Then he said: "This is a dangerous mission you are going on, and the utmost caution will be necessary on the part of all of you." He next questioned me on my competency to run an engine. I answered all his questions, and he then asked if I had any papers to show. I drew from my pocket a paper signed by the master mechanic of the Mobile and Ohio Railroad, on which I had run in 1860, a year before the war, and other papers from other roads on which I had been employed. He carefully read them all, and said they were sufficient on that point, adding: "On you rests a great responsibility. You are the first engineer selected to take charge of the engine, but there will be a reserve of two others from the other regiments." I was about to leave him, when a sudden impulse led me to say: "General,

¹ Wm. Knight was appointed second engineer.

² *Daring and Suffering.*

I would very much like to ask you two questions about this expedition, if you will permit me." He very frankly said: "You are at perfect liberty to ask any question bearing on this matter." Then I said: "What is the object of this raid?" He answered: "To destroy the bridges over the main lines of the enemy's communications. It will go far to separate their armies, and put them at our mercy." I said: "But what do you think of our chances of success?" "That depends upon circumstances," he replied. "If the enterprise can be carried out as planned by Mr. Andrews, I think the chances very good indeed; but if any delay happens, the difficulty will be increased." I asked: "Why so, General?" He answered: "Because, as the armies draw nearer, the roads will be more occupied with troops and stores moving back and forth, and these will be in your way." Then again pausing for a minute, he continued: "Your mission is very hazardous. It is not pleasant for me to send such a number of picked men into the enemy's power; but in war great risks must be run, and we are engaged in a war of right and wrong. Armed treason must be met and conquered; and if you fall you die in a glorious cause. I have great confidence in Mr. Andrews, your leader. I trust that the Great Ruler of the destinies of man will protect you all." He grasped my hand, and terminated the interview. I never saw him again.

It is evident from this interview that General Mitchell had weighed the chances himself, and regarded the success of the expedition as possible but hazardous; that he laid great stress on the attempt being made in time, and that he expected the destruction of the bridges would "go far to separate their lines and put them at our mercy." That it would be at least a temporary protection to his left, if on the defensive, after capturing the region he then intended to seize, is evident to any one.

Andrews met his men after dark in a wood without the limits of the town of Shelbyville, and while

a rising storm muttered and flashed in the distance. gave them their instructions. They were to break into small squads, go eastward into the Cumberland Mountains, and thence to the Tennessee River; cross to Chattanooga, and there take passage on a train for Marietta, Georgia. These instructions were successfully carried out; but very heavy rains induced Andrews to believe that Mitchel would be delayed. He determined to fix the date of his attempt one day later. Here he made the fatal mistake of his life. Had he had a more intimate acquaintance with General Mitchel, he would have known, with so important a fixed object in view as was before him, the chances of delay were almost nothing.

The different members of the party reached Chattanooga on the 11th, and found the people much exercised over the news of the battle of Shiloh. Mitchel had occupied Huntsville that morning, but unfortunately Andrews did not hear of it. They all boarded the evening train for Atlanta, and at midnight reached Marietta; there dividing themselves between the two hotels of the place, they went to bed.

A little before day Andrews went about waking up the men, who gathered in his room for instruction. He informed them that they would go on the train soon to arrive to a station called Big Shanty, where the train would stop for breakfast, and where there was no telegraph office. There they were to attempt the capture.

When the train came by it was boarded by the men, and shortly after reached the station where they designed to put their plan into execution. The conspirators could see the white tents of a gun which had recently been stationed at the place, and

on which they had not calculated, and sentries pacing back and forth. When the train stopped, the conductor, Mr. William A. Fuller, the engineer, fireman, and most of the passengers, went in to breakfast. All except the leader kept their seats, while he went forward to reconnoitre. He was followed by Engineer Knight. The locomotive stood alone. Between the baggage car and the engine were three box cars. Andrews directed Knight to uncouple between the baggage cars and the last box car. He then went back and gave the order to the men waiting in the passenger cars to come forward. Brown and Wilson, the other engineer and fireman, darted forward and took their post beside Knight, while the men scrambled into the box cars. All this while a sentry was standing not a dozen feet from the engine quietly looking on. Last of all Andrews stepped on board and nodded to Knight. The valve was pulled open, and the little train shot forward.

It is impossible to consider the position of these men — a long distance of railroad between them and safety, the gibbet behind them, most of them shut up where they could neither hear nor see — without a holding of one's breath. To such as could dare to engage in such an attempt, danger must be like an intoxicating drug. Their sensations have been described as "whole years of enjoyment condensed into a single moment."

The steam was low in the engine, and before they had gone a great way speed began to slacken, and at last the train came to a standstill. While the fireman poured oil and threw wood into the furnace, others got down and cut the telegraph wire and obstructed the track. While waiting, Andrews went back to

reassure the men in the box cars, whose feelings were under the most intense strain at the delay. "When we have passed one more train," he said, "we'll have no hindrance, and then we'll put the engine at full speed, burn the bridges after us, and dash through Chattanooga to Mitchel at Huntsville."

The first point of importance reached was the crossing of the Etowah River. Here on a side track stood a locomotive fired up and ready for use. Andrews neither attempted to destroy the bridge nor the locomotive. The firing of the bridge was not in the original plan; the local "freight" was due, and Andrews may have feared being surprised, and placed in a worse position than if he left both as they were. He continued on his way to Cass Station, where he stopped to take on wood. To those standing about the station, and to whom it was necessary that he should make some explanation for thus appearing with Fuller's engine, he said that he had been ordered by General Beauregard to 'press a train and have it loaded with powder, and take it through with lightning speed to Corinth. Andrews acted with consummate coolness, both on the road and at the stations, directing the engineer not to run too fast for safety, and ordering about the railroad officials as if he were the president of the road. At Cass Station he procured a time-table from the tender, who never for a moment suspected his true character.

At Kingston a branch road from Rome connected with the main road, and the morning train was due from that place. The raiders reached Kingston a little ahead of time. The local "freight" due on the main line had not arrived. Andrews switched his train on to a side track beside the passenger train

which had arrived, — again pointing to his box cars as a powder train. It was necessary to await the coming of the freight train, and while he was waiting he was obliged to act with perfect coolness and adroitness to avoid suspicion. In this his success was remarkable.

At last the train appeared. To the horror of Andrews and his engineers, it bore a red flag, a signal that another train was coming behind. The conductor brought the news of the capture of Huntsville, and that the Confederates were running away all the rolling stock to keep it from the enemy. The importance of Mitchel's warning against delay was now apparent. They were face to face with the very obstacle that he had predicted. There seemed nothing to do but await the passing of the next train, and while they are waiting a glance may be taken at the action of those who were left at Big Shanty Station.

When the engine moved out, the conductor, Mr. Wm. A. Fuller, and others who were at breakfast with him, heard the sound of escaping steam. They jumped from the table, and Fuller and one or two trainmen started after the retreating train on foot. After a run of two miles they found a hand-car, and jumping upon it drove it to the Etowah River, where stood the engine "Yonah" fired up and ready for use. Abandoning the hand-car, they took the engine and steamed to Kingston.

Fuller, taking the engine of the Rome train that he found at Kingston, which was a better machine than his own, lost no time in renewing the pursuit of the fugitives, who had left Kingston and were now at Adairsville.

Meanwhile Andrews and his party had left Adairsville for Calhoun, nine miles distant. This run was made at a frightful risk. At any moment he might meet the passenger train from Chattanooga. Nevertheless he crowded on all steam, the engine, swaying and rocking on the track, sprung forward like the wind, making the distance of nine miles between the stations in seven and a half minutes, and this on a Southern railroad of 1862. When they came in sight of Calhoun the passenger train was just moving out. Andrews blew his whistle, and the train backed on to a side track; but being very long, overlapped and stopped the way on the main track.

Again the party was delayed, but after explanations, the obstruction was removed and they proceeded on their way towards the Oostenaula bridge, no great distance ahead. This they were to burn, and then pursuit from the rear would be impossible.

On the road Andrews heard more of the operations of General Mitchel and the panic he had created. He was told that the Yankees appeared to have captured all Confederate trains on the Western road, so that for twenty-four hours no train had arrived, and, telegraphic communication being interrupted further and further eastward, Mitchel was evidently coming to Chattanooga.

The party had stopped, before coming to the Oostenaula bridge, to take up a rail. While at work they heard the shriek of a whistle behind them. It was the first of a number of trains that had by this time joined in the pursuit. Andrews and his men remounted and sped away. The pursuing engine was soon close behind. Andrews dropped a car. Fuller saw it and reversed; then coupling it on, proceeded.

Andrews now came upon the bridge. He was too late to burn it; Fuller was pressing on at full speed; all that could be done was to drop a car on it, and the party sped on towards Resaca, throwing out ties from a hole in their rear car to obstruct the track. Passing a wood station they stopped and took on more wood, though not daring to stop long enough to gain more than half a supply, and from a water tank soon after took in all the water they needed.

At Dalton, which they were now approaching, the road branched, one road leading to Chattanooga, the other to Cleveland. Dashing through the depot at the imminent risk of collision with cars standing on side tracks, they stopped a mile beyond and cut the telegraph wire. But it was a second too late. Fuller had picked up an operator, and a warning message had just passed to General Leadbetter at Chattanooga. As a last resort the party attempted to take up a rail, but a whistle from the pursuing engine warned them that it was too late.

Andrews now ordered the firing of the last car for the purpose of leaving it on the Chicamauga bridge which they were approaching. The men fell to work to whittle kindling with their knives, some fagots were taken from the engine, and the car was soon in a blaze. The bridge was a large one and covered, and it was hoped to fire it. When they reached it they stopped for the purpose of uncoupling. As they pulled the pin the smoke of the pursuing engine was again seen. Unfortunately the bridge was wet. The car burned well, but was slow in communicating its flame. The pursuers pushed right on. Andrews and his men drew off a short distance and watched the success of their forlorn hope. Fuller steamed on to

the bridge, pushed the burning car before him each of under the cover and put it on a side track. From

It was now evident that all was lost, and that the party must either stand together and fight or take to the woods. Andrews decided on the latter course and ordered the men to break up, and for each man to take care of himself. The locomotive was abandoned, and its captors pushed out in different directions.

Here ends the expedition. All were captured, and after passing through terrible sufferings, Andrews and seven of his men were hanged. Six more escaped, and the rest were, after a long period of dreary confinement, exchanged. Of those who escaped, two, a month after, reached the Union lines at Corinth, two reached Kentucky, and two worked their way down the Chattahoochee River to the blockading fleet on the Gulf of Mexico.

Soon after General Mitchel's occupation of Huntsville the enemy sent him news of the disaster. They reported that Andrews and all his men had been executed at Chattanooga. This was doubtless to avoid retaliation, which Mitchel might threaten in case he should know the truth.

It is easy now to look back and point out what would have been wise action at the time, in the different decisions Andrews found himself called upon to make. But it was different then. The delays of armies in war are proverbial, and Andrews had good reason to believe that Mitchel would not reach Huntsville on the day he expected. His decision to delay cannot be called unwise, and it was simply an error. Again, had he disabled the "Yonah" or burned the Etowah bridge, he would probably have

Andrews failed in his attempt. Thirdly, it is plain now ^{late} that when delayed at Kingston he should have gone forward, pushed back the coming trains to side tracks, and thus avoided delay. Lastly, he should have kept his party together. They were at no great distance from Stevenson, and could easily have gone through in a body. But Andrews was no soldier. His methods all lay in concealment. Had he possessed, with his wonderful ability in this direction, the instincts of a soldier, he might have attained a far different result.

Long after, when General Mitchel had passed from all earthly duty, the remnants of this remarkable combination of nerve, seldom if ever got together before, and never for any such work, were exchanged and sent to Washington. They were received by the Secretary of War with great distinction; their wants were supplied, and each was decorated with a medal in commemoration of their bravery and their sacrifice. He who would have listened to their tale with the deepest interest, was where no earthly voice could reach him.

Before taking leave of that portion of General Mitchel's operations which pertains to the seizure of the Memphis and Charleston Railroad, let us take a view of a most singular picture of motion over a very extended field. Within twenty-four hours, three different parties were moving upon three different parts of the road. On the evening of the 11th, Colonel Turchin had started westward to pass through Decatur towards the army at Corinth. On the morning of the 12th, Mitchel was moving towards Stevenson. At the same hour Andrews was flying from

Big Shanty Station towards Huntsville. Each of these parties moved with rolling stock captured from the enemy over a section of railroad two hundred and fifty miles long, and situated at no point less than three hundred miles south of Union territory. While all this was taking place on the railroad, that portion of the division which had been left behind was advancing towards the centre.

The force actually employed was not four thousand men, and, including the reserves, for active operations not over seven thousand. Surely so great an undertaking, such varied motion, ought to satisfy even so restless a man as General Mitchel.

greatest results and the most precise telegraphed General Beauregard's construction of the bridges on the river gave him an opportunity to countermand the Carolina regiments, and to direct the Montgomery and the Mobile

On the day General Mitchell arrived at General Halleck arrived at the field and assumed command in the field. General Buell's force, Halleck became in command of the troops under Mitchell. Mitchell reported to General Buell for his orders. Three months General Halleck was in the West.

As soon as Mitchell returned to Stevenson he took up the telegraph office to look them over. They were one suspicious-looking man. Huntsville was a repeating station. That the despatch might have been sent to an important point to another station. Huntsville office. At any rate it was a simple letter. As it was a simple letter it was difficult. The mysterious despatch was a pine mess-table, and was very general, with an occasional hint to his personal staff. The words left were evidently the address, the place of sending and the "To," "Corinth," and "Atlanta." Then followed "Georgia." With so much of the address to construct the rest of the cipher copy: —

CORINTH, *April 9.*¹
WHIRALV, *Ndirt 9.*

To Genl. Saml. Cooper, —
Lh Zyat Jurt Whhdyl, —
Richmond, Va.
Irwwrhap, Mn.

All present probabilities are that whenever the Ntt diyjyal dihmnmrtlrlyj niy lvl cvyaymyi lvy enemy moves on this position he will do so with an yayre rhmyj ha lvrj dhjrlrha vy crtt ph jh crlv na overwhelming force of not less than eighty-five thou-hmyicvytvraz xhvw y hx ahl tyjj lvna yrzole-xriy lohksand men. We can now muster only about thirty-five juap rya. By wna ahc vkjlyi hate nghkl lorite-xrmy thousand effectives. Van Dorn may possibly join us lohkJuap yx2!wlrngj. Mna Phia vne dhssrmle shra kj in a few days with about fifteen thousand more. ra n xyc pnej crlo nghkl xrllyōa lohkJuap vhmj. Can we not be reinforced from Pemberton's army. If Wna cy ahl my vyraxluwyp xihv dyv92ilhaj nrve. Rx defeated here we lose the Miss. Valley and probably pyxyulyp vyiy cy thjy loy Mrjq Mnt3ye nap dihguxte our cause; whereas we could even afford to lose hkr wnkyj; cvyiynj cy whktp ymya ux6hip lh thjy for awhile Charleston and Savannah for the purpose xhi nevrty Wonityjlha nap Inm2a57l xhi loy dkv8hjy of defeating Buell's army, which would not only insure hx pyxyulraz 2kytxj nive, cvrww chktp ahl hate yajkvy us the valley of the Miss. but our Independence. kj cvy mnt3ye hx lvy Vrj9 qkl hki rapyd789n9w7.

G. T. BEAUREGARD.
Z. L. QYNKVYZNVP.

General Mitchel thought he saw in this despatch the key to the situation for General Halleck in command of the army before Corinth. So important did

¹ This despatch found its way into the Southern papers, where it met the eye of General Lee. He suggested to General Cooper that he change his cipher.

Mitchel consider it that he forwarded a copy of it by three different routes, in order to make sure of there being no failure in its reaching its destination. General Halleck did not seem to place much value upon it. At any rate he never acknowledged its receipt. He spoke of it to the War Department as "intercepted despatches." Some ten days after, Pope's army joined Halleck, giving him an effective force of thirty thousand fresh troops. His army then numbered seventy-five thousand effectives. Had he inaugurated a move at once, he had sufficient troops to effect the capture of Corinth without serious loss or delay.¹

Being temporarily protected from any attempt to cut him off by rail on his left, by the burning of the bridge beyond Stevenson, General Mitchel began to push forward on his right, with a view to opening communication with General Halleck's army at Pittsburg Landing. Colonel Turchin was directed to push forward with a portion of his brigade at Decatur, and on the morning of the 16th of April he occupied Tuscumbia and Florence. To hold the whole line of the Memphis and Charleston road from Bridgeport to Corinth now required that some central point between Decatur and Corinth be occupied in force. The Florence bridge had been destroyed by the enemy; hence no small force could occupy Tuscumbia with safety, there being no safe retreat across the river in case of attack. But there was nothing to prevent its being occupied by a sufficient force to keep the road open, and hold its position till it could

¹ General Grant, in his Memoirs, says: "I am satisfied that Corinth could have been captured in a two days' campaign commenced promptly on the arrival of reinforcements after the battle of Shiloh."

be reinforced in case of attack, or retreat on its supports either east or west.

General Mitchel was so anxious that this should be done, that he not only sent despatches to General Buell, strongly recommending it, but sent his own chief of staff Captain Prentice, and Lieutenant Williams, by the railroad to represent the matter at headquarters. The locomotive on which they left Huntsville became disabled and they failed to get through; but the despatches were received. The matter was referred by General Buell to General Halleck, who decided adversely, but suggested that Mitchel keep an outpost at Tuscumbia. The absurdity of this proposition was very soon demonstrated. Colonel Turchin and his little force at Tuscumbia came very near being cut off by the enemy, who were tempted by the landing of one hundred thousand rations sent up the Tennessee River to feed Mitchel's army as he had requested, and landed at Florence. Fortunately Turchin's force and the rations were both withdrawn in safety.

By the failure to occupy Tuscumbia, the generals at Corinth had deprived Mitchel of his ability to hold the railroad south of the Tennessee River, and to threaten the rebel army at Corinth in rear as he had hoped. The bridge at Decatur was now at the mercy of the enemy. General Buell had ordered General Mitchel to destroy the Bridgeport bridge if possible, and the Decatur bridge as soon as he should leave it. Mitchel had no troops to defend the Decatur bridge in case the enemy chose to send a sufficient force to possess himself of it. He sent repeated telegrams protesting against the abandonment of the road, not only to the generals at Corinth, but to the War Department: all to no purpose.

Meanwhile there was trouble on the left. The enemy had burned two railway bridges — the one across Mud and the other across Crow Creek — between Huntsville and Stevenson, thus cutting General Mitchel's communication with Stevenson. Heavy spring rains had flooded the country, and Mud and Crow Creeks were much swollen. It was plain that the enemy could rebuild the bridge that Mitchel had burned seven miles beyond Stevenson, and cut him off by means of the Nashville and Chattanooga Railroad. Their railroad communication was perfect to throw a force from Georgia or from East Tennessee across the Bridgeport bridge, thence, with the burned bridge restored, to Stevenson and northward. The burned bridge could be rebuilt by a competent force in less than a week.

Noticing one day a man fishing on a cotton bale which floated in the Tennessee River at Decatur, the idea occurred to the general that this cotton, which had been used by the enemy for a fortification and lay now scattered about at Decatur, could be made to serve for a pontoon bridge. He at once had it transferred to Mud Creek, and commenced a process of casing the bales in wood and splicing them together. He proposed to build a bridge that would take him past the intervening creeks to Stevenson, and thence on to Bridgeport, the junction of the Tennessee River and the Memphis and Charleston Railroad east of him, which point he was desirous to seize. This work required his personal attention. At Bridgeport he would be more than a hundred miles from Decatur. The Decatur bridge was a large and important structure, and might at any time become of great advantage to the enemy, should he possess

himself of it, and then throw a force across the Tennessee River. Controlling the bridge, he would control an avenue of offensive operations and of retreat. General Halleck had determined not to utilize it on his part; the only remaining use was for the evacuation. General Mitchel had delayed to obey General Buell's order to burn it, till he could recommend such action. He would save it and the road leading west from it. Since he had used every effort to alter this decision, since he could not leave a sufficient force to guard it, and had an enemy to take care of one hundred miles to his left, there was no further excuse to let it stand in face of General Buell's order. The cotton barge bridge was fired.

While it was burning, the bridges at Crow Creek and Mud Creek, between Huntsville and Stevenson, were being replaced. The cotton bales, having been used and discarded, were thrown across the river and spliced together in the form of an arch to resist the current. The work on the first of these bridges, according to General Mitchel's exact way of stating it, was completed in twenty-four hours and twenty minutes. Two regiments of infantry first passed over it. Then, as it did not seem to give under the load of the dismounted men, a company of cavalry tried it. The result still proving satisfactory, a section of artillery was sent over. Here the crossing ended, for there was nothing more to cross.

After the building of this bridge,¹ Colonel Stevenson, in command, found a scow with which to make a crossing of Crow Creek, and the remaining bridges were to be built more at leisure.

¹ General Grant, a year afterwards, used cotton bales for the same purpose.

Meanwhile General Mitchel had sent his trusted scout, Corporal Pike,¹ towards Bridgeport to get such

¹ The following letter from Corporal Pike was written on the day General Mitchel was prostrated by an illness from which he never recovered. Had he received it he would most assuredly have complied with the request contained in it, for he owed to Pike the information which enabled him to surprise Bridgeport : —

CLIFFBURNE HOSPITAL, WARD No. 1,
WASHINGTON, D. C., October 26, 1862.

MAJ.-GEN. O. M. MITCHEL :— You will remember that I left Huntsville, according to your orders, on the 23d of April last, to make a scout in the vicinity of Bridgeport town. On the way I fell in with Lieutenant Christ, and travelled with him as far as Bellefonte. Having arrived there we found the place had been deserted by our troops. Lieutenant Christ, having already exceeded his orders, resolved to return to Huntsville. This left me in the vicinity of a large rebel force and alone. Knowing that I could not traverse the country on horseback without great danger, I resolved to finish the scout on foot. So I sent my fine horse back to the regiment, in care of Lieutenant Christ. After they had been gone about an hour a train arrived at Bellefonte, loaded with our troops and part of the 4th Ohio regiment (cavalry), under command of Major Driesbach, who insisted that I should take a horse and finish the scout ; that you had given him orders to proceed to Bridgeport to burn the big bridge, and that I was to afford him all the assistance in my power. I proceeded to Bridgeport, accompanied by Lieutenant Crane, with twenty men as far as Stevenson. Here they turned back three miles and camped for the night. I kept on alone to Bridgeport and attempted to enter General Leadbetter's camp (Confederate), but was defeated by the high water in the lagoon, between Widdens Creek and Bridgeport. I then went to a house close to where they were building the railroad bridge over Widdens Creek, and within five hundred yards of their pickets, where I obtained all the information necessary to the capture of Bridgeport. I then returned the same night to where Lieutenant Crane camped, and gave him the report to be delivered to you in person, and no one else. The next morning I went back to locate the rebel camp and get the lay of the roads, of the creeks and the crossings. While engaged in this occupation I got into a fight with nine rebel pickets. I killed one sergeant and received sixteen rounds from a double-barrel shot-gun for my pains, at the distance of forty yards. A battalion of Tennessee cavalry, composed of five companies, under command of Colonel Starnes, being at only a short distance from me, at the firing came down on me at a charge. Well

nation as would enable him to surprise the
at the bridge. This information was secured
brought back by Lieutenant Crane of the 4th
cavalry.

On the completion of the cotton bridge General
Mitchell went in person to attack the Confederate
works under General Leadbetter, at Bridgeport, and
recapture the bridge. He advanced about two thou-
sand infantry, two companies of cavalry, and a sec-
tion of artillery by the railway, until he arrived at

Bridgeport and to run. The fight occurred about daylight. After running
about nine miles after nine o'clock at night, and that, too, over five of the
highest mountains of Tennessee, I finally sank exhausted at Terry's
works, near Anderson's depot, on the Nashville railroad, where I
was soon surrounded by Captain Haines' company, when after a
scuffle between his first lieutenant, a corporal, and a private, I
was finally disarmed and bound hand and foot.

This is the history of my capture. It is needless to go on in the
particulars of my after treatment. Suffice, I was taken to Knoxville
to be hung, but owing to the intimation you gave them that you
would hang twelve of their men,¹ they saw proper to avert the execu-

I was taken then to Mobile, then to Tuscaloosa, from there to
Montgomery, and from there to Macon. At Tuscaloosa I was cut
down with pneumonia, together with typhoid fever and dysentery, all
at the same time, and have not seen a well day from that day to this.
When I arrived at Washington city, unable to stand alone, covered
with lice, with no other clothing than two ragged, filthy shirts and
a pair of drawers to match. I was paroled at Richmond, subject to
recall, and it is my earnest desire that you should have me ex-
changed as soon as possible and transferred to your command, as I
cannot serve any other general with such singleness of heart as
you would yourself; as no other general has shared hardships and dan-
gers with a common soldier, as I have known you to do; besides,
generally, and I hope it is not vanity, I have believed that you reposed
a confidence in me.

Believe me, sir, your obedient servant,

JAMES PIKE.

MAJ.-GEN. O. M. MITCHELL,
Commanding at Port Royal, S. C.

¹ There is no other record of this threat.

the bridge he had burned after occupying Stevenson. Here, four miles from Bridgeport, he met the enemy's outposts. After driving them, and giving the appearance that he was advancing by the railway, he suddenly threw his force across the country about a mile, to a road that led from Stevenson to Bridgeport, dragging the artillery by hand. On the way it was necessary to construct two small bridges. While so doing the general threw his own escort forward as scouts. They met the enemy's cavalry videttes, and drove them from the Bridgeport road, forcing them to take a road which led to Jasper. Then he advanced to a wood a few hundred yards from the bridge, and quietly drew up his force in line of battle. The first the guard at the bridge knew of his coming was seeing a line of infantry advancing upon them. They made no resistance whatever, scampering across the bridge in haste.

At Bridgeport an island is crossed by the railroad, forming two bridges, the one on the west, the other on the east side of the island. The rebels were attempting to burn the west bridge when the general called for volunteers, who rushed across and saved it. They attempted to blow up the east bridge, but failing, succeeded in firing it. On the island were found two six-pounder guns and some arms which had been left in the hurry of departure.

The enemy were not only surprised but astonished. Some forty or fifty of their cavalry near by, hearing the firing, rode up through a field to learn what was the matter. They did not seem to know who our forces were. A shell was dropped into their midst, which relieved them from further doubt.

The retreating force sent a parting salute from the

other side of the river, in the shape of a shell, before proceeding to Chattanooga. A few days later some of General Mitchel's scouting cavalry penetrated some twelve miles towards Chattanooga. They captured some Southern mail, and brought back news of the fall of New Orleans. It was reported to them that the Confederate force in that city was to be sent to Corinth, and that a heavy force would be thrown across the Tennessee River, without a train, to subsist on the country, with a view to compel the abandonment of Northern Alabama.

Upon the capture of Bridgeport, in reporting the matter to General Buell, Mitchel said, "Holding the main bridge we can move to the other shore whenever it may be deemed advisable." But his force was so small that he could not keep any considerable body of troops at Bridgeport. Colonel Sill, who had been left in command there, asked for more cavalry. General Mitchel had no more cavalry to give him. He had but four hundred or five hundred fit for duty from Bridgeport to Decatur. He therefore directed Colonel Sill to make his headquarters at Stevenson, leaving a cavalry outpost at Bridgeport, supported by two companies of infantry. "We are too widely separated," he said, "and subject to the danger of losing our bridges."

In the meanwhile, General Buell had telegraphed (April 19): "I telegraphed you some days ago in regard to the importance of destroying the bridge over the Tennessee River beyond Stevenson, and also the Decatur bridge, as soon as you should leave it. By that means you could be withdrawn almost entirely from that line. I hope you will be able to accomplish the former without great difficulty or delay."

No force was ever given him. It was the policy of the government to give every available man to the two prominent commanders, General McClellan and General Halleck. Indeed there was a constant call from these generals for troops, and whenever Mr. Lincoln signified a wish that any force might be detached from the armies of either, he was met with vigorous opposition.

The light thrown upon the situation as it existed then, by history, the indifference and discouragement of the Southern people, especially in the West, the defencelessness of the Cotton States from Mitchel's position, now clearly indicate that the plan was not so wild as might then have been supposed, and the great excess of General Halleck's army at Corinth above General Beauregard's force, shows clearly that all General Buell's troops¹ might have been spared for operations eastward.

Reports of the enemy's forces marching against the little body of men at Huntsville were incessant. From the time of the occupation of Northern Alabama for two months reports of the advance of bodies of the enemy, numbering from one thousand to ten thousand men, were constantly coming in. They came all day and all night. An aide was detailed each night to receive the telegrams, and if there was anything requiring immediate attention, to awaken the general. These reports usually came from the rear.

The cavalry force attached to the advance posts from Decatur to Stevenson was so small in number that it was necessary to gain some other means of information as to the crossing of the Tennessee River

¹ Beauregard's force was not over 50,000; Halleck's 120,000.

by the enemy, between these points. The general directed the outposts to secure the services of negroes on the plantations along the river banks to watch for any crossing of troops, and bring in the information to headquarters. It was not long before a cordon of negroes stretched along the whole length of the river line, ready at a moment's notice to mount one of their number and send him flying to Huntsville. It was not a rare sight to see a negro dash up to headquarters on a horse covered with foam, and gasping for breath.

"They 'se cumen, massr ! "

"Where? "

"Crossen de riber."

"How many? "

"Three hundred thousand ! "

"Then it is all up with us; we can never resist that force."

It would probably turn out that some thirty guerrillas had made a crossing. The uneducated outpost did not know the difference between thirty and three hundred thousand. Still the watchfulness of these negroes was invaluable. Information of all that was going on far away in the heart of the Confederacy could not be had, at least not with any reliability or at all times, and Mitchel did not know when a rebel force might be pushed past him and strike far in his rear before he could even know of its proximity. As long as he could use the negroes for information he felt comparatively secure.

There was however a difficulty in the way of this use of negroes. While at Nashville General Mitchel had received a communication from General Buell with reference to some slaves who found refuge within

To this Secretary Stanton telegraphed in reply:—

No general in the field has deserved better of his country than yourself, and the Department rejoices to award credit to one who merits it so well. The Department is advised of nothing that you have done but what is approved. The assistance of slaves is an element of military strength which under proper regulations you are fully justified in employing for your security and the success of your operations. It has been freely employed by the enemy, and to abstain from its judicious use when it can be employed with military advantage would be a failure to employ means to suppress the rebellion and restore the authority of the government. Protection to those who furnish information or other assistance is a high duty.

The troops in Mitchel's rear were then placed under his command by General Buell. The troops contained in the district of Middle Tennessee and Northern Alabama were about eighteen thousand effectives. At any rate they might all be called effectives except the cavalry, which had been galloping back and forth from one place to another so long, that there was scarcely a serviceable horse in the whole district.

This change was quite beneficial. Indeed the district might as well have been a separate department. General Halleck paid little or no attention to General Mitchel, and at times seemed to have forgotten him altogether. "I have not heard from General Buell or General Halleck for two weeks," Mitchel said on the 6th of May in a telegram to Secretary Stanton; and had it not been for the order he had received to report direct to Washington, he would have had a lonely time. Had his region been made a separate department, and one half the surplus troops of Halleck's over Beauregard's army given him, he would have started for Savannah.

Scarcely had the gust of Morgan's raid passed than Colonel Turchin at Athens reported a rebel force of from three thousand to five thousand, preparing to cross the river, with six pieces of artillery, to attack his command. General Mitchel did not credit the report. His own scouts were out, but reported only rumors. However, he ordered two regiments from Huntsville to Athens. On the next day the enemy was reported crossing above Florence, and again at Lamb's Ferry. The reports came so thick and fast that General Mitchel began to look for other resources than his few scouts and the negroes, to bring him information. The negroes made admirable watchers, but their information as to numbers was not reliable.

He concluded that it was necessary for him to have a gunboat with which to patrol the river. No regular boat could pass the shoals to come far enough up the Tennessee River for the purpose; besides, if he asked the government for a gunboat the war might end before he could get it. He found an old mule ferry-boat. This he patched up, and mounting a gun forward set her afloat under the name of the "Gunboat Tennessee." There is something ludicrous in the military gravity with which he gave his instructions to its commander. When one considers the immense resources that were placed at the disposal of other generals, and the makeshifts of Mitchel, working with nothing except what he could improvise, there is something more than ludicrous in this order. It is pathetic:—

CAPTAIN: You are placed in command of the gunboat Tennessee, now lying at Whitesburgh. You will find one piece of artillery on board the boat. You will take on

board a crew of armed river men from your own company such as you may deem necessary. You are also authorized to take on board volunteers from the detachment of the 15th Kentucky, now at Whitesburgh. Go prepared for any emergency to work your boat should the horses or mules be killed.

The Gunboat Tennessee did good service. Steam soon replaced the mules, and the peculiar-looking craft continued to patrol the river till General Mitchel left the country.

The following letters give some quaint pictures of General Mitchel's daily life at Huntsville, and his views as to the progress making in the prosecution of the war:—

CAMP TAYLOR, HUNTSVILLE, *Apr. 22, 1862.*

I have just returned from visiting my guards. My battle steed was a magnificent locomotive which swept me along at the rate of thirty miles an hour. It was rather funny to see my pickets drawn up and come to "present arms" as I went flying past. Occasionally I stopped and addressed them a few words of instruction and encouragement. The news of my nomination for promotion reached me yesterday afternoon, and has given great satisfaction to the entire division. It is to me most unexpected, and I appreciate it the more coming at the recommendation of the Secretary of War, whom I do not know. It is all well enough and will no doubt gratify you at home, but if it brings me no more troops and no broader field of action, I care little for it.

I am just now constantly occupied. My long railroad line, and the great distances separating my troops, the scarcity of provisions and forage, and the immense distance to haul, and the rains and floods, keep me very active to make all go right.

I see by the newspapers that my friends in the west and east are anxious for the safety of my division. I do not fear the enemy, either on the one hand or the other. From

towards Chattanooga they may come possibly in sufficient force to move me, but I think not. My outposts are sixty miles in advance, and my locomotives and telegraph wires are very swift and my men on the alert.

We are doing a sort of gigantic "Morgan" business, with this difference: that our warfare is legitimate, his is not. The Union feeling is growing in our rear, and even in Murfreesboro the old flag has been hoisted by the citizens, and they promise to fight in its defence. We are to have a flag-raising at Athens, on one of my railroads, in a day or two. We now have regular trains running, and a printed time-table; a splendid machine-shop in full action, and all the railroad offices in complete order.

I have numerous most affecting interviews with ladies whose lords are in the rebel army, or profess their devotion to the Southern confederacy. They all claim the property of the concern to be their own, and not their husbands'. Indeed, I begin to think the husbands a poor miserable set of beggars, for the wives own everything, horses, plantations, negroes, and all

HUNTSVILLE, *May 22d.*

How I do long to see this war ended; and how slow our generals do seem to move! There is General Halleck now for nearly two months making twenty miles.¹ *It should have been done in two days.* Gen. Sidney Johnson marched out of Corinth, attacked our troops, defeated them on the 6th of April, was himself defeated on the 7th, and yet the rebel army retreated in good order over these very roads that General Halleck has found impassable for nearly two months

I was interrupted just here, and so my letter has lain over until 6 A. M., 23d. And I am now writing in the midst of a grand concert of birds, with a splendid bouquet on my table. Among the flowers a gorgeous magnolia, half as big as your head. The morning is cool and beautiful, the weather delicious, and the country charming. But

¹ Compare with Grant's opinion, page 306.

I am a little like old John C——, "I would much rather stay where I am acquainted."¹

We have all sorts of expeditions on foot against roving bands of the enemy's cavalry and "bush whackers" who infest the country. It is all a very small business, and I am growing very tired of such duty. It is six weeks to-day since I entered Huntsville, and the predictions north and south that I was to be driven out have not been verified. I believe I can remain as long as I please.

¹ This refers to a story of one making a similar reply, when very ill, to a friend who was picturing the beauties of heaven.

XIII.

WAYS AND MEANS.

GENERAL MITCHEL was virtually military governor of his district. He was the only authority within a hundred miles of him north, east, and west to whom civil questions could be referred. The matter of seizure of supplies from citizens, the punishment of crime, and many similar questions, he was constantly forced to act upon. In all matters which his authority as major-general commanding did not cover, he telegraphed or wrote at once to Washington,¹ receiving authority before acting.

A matter which especially engaged his attention was an order through General Buell, issued by the government to commanders, to give every facility to buyers of cotton. This order of the government was a matter of civil and international policy. General Grant has said in his Memoirs, that the gold the people of the South got for their cotton was of more value to them than the cotton was to the North. But this was not a question for any general to decide. Mr. Lincoln was alone responsible for the act. He was not only considering the matter in a military point of view, but with reference to the attitude of foreign nations; and the wisdom with which Mr.

¹ These matters were arranged directly with the respective departments at Washington, and not through General Buell, on account of the frequent difficulty of communication.

Lincoln managed the political and diplomatic affairs of the government is one of the definite features of the history of his administration, of which time is not likely to change men's opinions.

But General Mitchel had a special reason for opening the cotton trade, which concerned his own position on the line of the Memphis and Charleston Railroad. The running of his trains was a necessity. But no railroad can be operated without funds. There were many skilled operatives required, and no money was furnished by the government with which to pay them. Whether the authorities at Washington had got used to expecting General Mitchel to improvise everything he required, or whether they had no money to give him, does not matter. At any rate, they left his quartermaster entirely without funds.

While at Murfreesboro some negroes reported to General Mitchel's commissary, Captain Paul, that the Confederate army in crossing Stone River had dropped a safe. Paul was directed to raise it. Confederate army reports found in it showed that it belonged to the Confederate government, and its contents were liable to confiscation. The other contents were \$8,000 in Confederate bonds and \$150 in Confederate money. Most of the money was given to the negroes who gave the information, and Captain Paul, being offered sixty cents on the dollar by Confederate citizens with more confidence than prudence, sold the bonds for \$5,020. Had Paul sent the bonds to Washington they would have, probably, been there yet. A few weeks afterwards he could have replaced them for five cents on the dollar.

All this money was used by the quartermaster to pay the hands on the railroad, but it would not last always. Still no funds came through the regular channel, and General Mitchel found it necessary to raise more funds or stop his trains, which virtually meant an abandonment of the territory. He was always fertile in expedients, and in casting about for ways and means, hit upon the cotton which had been used by the Confederate army for breastworks for the Decatur bridge, and consequently subject to confiscation to the government of the United States. It did good service as a pontoon bridge, and then Mitchel conceived a plan for turning it into funds for army purposes.

It was about this time that the order came to open the cotton trade. Could he so facilitate matters that buyers would come to Huntsville, he might sell this government cotton and thus replenish his quartermaster's exchequer. But there were several difficulties in the way: first, for purchasers to come to Huntsville for cotton was not only a great pecuniary but a personal hazard; secondly, there was no transportation north for any cotton they might purchase. Mitchel wrote to New York to connections there, to persuade a party to come to Huntsville to purchase cotton, promising that he would give them all the aid in his power. A party of several gentlemen was organized, but one of them, being captured by Morgan at Pulaski, determined that operating in cotton in Tennessee and Alabama was an extremely hazardous undertaking, and went back to New York and so reported.

In the mean time a gentleman, a stranger to General Mitchel, Mr. J. H. Clark, came into Mitchel's

tent one morning and told the general that he had come through with \$20,000 in his pocket, at the imminent risk of losing it.

"You are a brave man," said General Mitchel, "and I will give you every facility in my power for the purchase of cotton, and to transport it north after the purchase."

There was railroad transportation all the way to Louisville, except a distance of twenty or twenty-five miles. Over this gap wagons were hauling supplies for Mitchel's army, coming south loaded, and returning empty. General Mitchel gave directions to his quartermaster to transport cotton for buyers over this gap, over which they would otherwise pass empty, charging for the government a fair price. Then his quartermaster sold the cotton used by the enemy in the fortifications at Decatur and afterwards by Mitchel for his cotton bridge, realizing some \$18,000. Thus he went on running his railroad without fear of being hampered for funds. The party of buyers whom he had induced to come from New York arrived too late to take advantage of the inducements he had offered them. Each step had been reported to the Secretary of War, or to the Secretary of the Treasury, before taken, and had been approved.

Had General Mitchel had more worldly wisdom, he would have abstained from having anything to do with the sale or transportation of cotton. It is sufficiently difficult for men in prominent places to prevent malicious attack, even by observing the greatest prudence. General Mitchel relied upon the purity of his intentions, and upon reporting beforehand all he proposed to do to the Secretary of War and the Secretary of the Treasury. But in his desire to ac-

comply with results he showed a trait which had been with him all his life—a want of foresight in laying himself open to attack. There had been one who had made it a constant study to remedy this defect. But that one was not with him now.

were in possession of it from Decatur to Tusculum when he ordered Mitchel to pass cars and locomotives at Decatur. Mitchel had no force to drive him from the road west of Decatur, and so told both Buell and Halleck. Nevertheless, he assured them that he was ready to obey the order whenever the road should be occupied by the advancing Army of the Ohio. Halleck spent a month in futile attempts to utilize the line, then abandoned it. Then a month after he had given General Mitchel the order to pass locomotives and cars, opened a fire of complaint to Washington against Mitchel for not obeying his order.

Mitchel at once removed all obstacles to the transfer of troops by arranging a competent ferry across the Tennessee River at Decatur.¹ Meanwhile General Halleck, urged on by the President, seemed really anxious to get Buell's army to Chattanooga. On June 2d he says:—

No time should be lost in re-establishing communication with Mitchel.

And June 4th:—

Time now is everything. There is not a moment to be lost in opening communication with Mitchel.

And again on June 6th:—

As soon as Bear Creek bridge is repaired we can open communications with Mitchel if the enemy should be reinforced at Chattanooga.

Now there was nothing to hinder these wishes of General Halleck from being speedily carried out. It was not seventy-five miles from Corinth to Decatur, a matter of four or five days' ordinary march. Once across the ferry there, Mitchel had railroad transpor-

¹ Another ferry was arranged at Florence.

tation for taking a considerable force to Bridgeport in a few days. Yet it was not till June 27th, four weeks after the evacuation of Corinth, that Mitchel received a communication from Brigadier General Garfield, commanding the advance brigade of Buell's army, announcing his arrival at Decatur, and asking for rations for his command.

While Buell's army was slowly creeping towards Huntsville, the Confederate General E. K. Smith was manœuvring with General Morgan before Cumberland Gap, and with General Mitchel before Chattanooga. General Smith's headquarters were at Knoxville. From there, on June 6th, he telegraphed through his aide-de-camp, his subordinate, General Leadbetter, commanding at Chattanooga: —

I am directed by the major-general commanding to acknowledge the receipt of your telegram announcing that all is quiet at Chattanooga. He calls attention to the importance of unrelaxed vigilance now that the enemy seems inactive. In his operations heretofore General Mitchel has encountered no regularly organized force; he has already shown himself an energetic commander, and his past success may embolden him to daring and hazardous undertakings in the future, in which case the commanding general is particularly anxious that you shall be unceasingly on the alert to prevent any surprise, and at the same time be ready to avail yourself of any opportunity by which he may lay himself open to attack. To this end he urges the absolute necessity of your maintaining a constant watch at all the mountain passes, and giving vigilant and unremitted attention to every movement of the enemy of which you should have accurate and reliable information.

This caution to General Leadbetter was simultaneous with a demonstration of General Mitchel on Chattanooga. Selecting what troops could be spared

Nashville, and from Chattanooga into North Alabama. Pardon me if I have exceeded the limits of my duty. It is for me to report the facts. My force is totally insufficient for anything more than to guard the extensive region over which they are spread from hostile citizens and small bands of the enemy. I await your orders with anxiety.

At this time General G. W. Morgan was threatening General E. K. Smith at Cumberland Gap. He desired that Mitchel be ordered to make a demonstration against Chattanooga, in order that the Confederate forces might be diverted, and that his efforts to secure the gap might be thus facilitated. Orders finally came to General Mitchel from General Buell to keep his forces in position, so far as possible, to threaten Chattanooga, but they came after the desired result had been accomplished. When Negley shelled Chattanooga, Smith evacuated the gap. When Negley was ordered back to Murfreesboro, Smith went back to Cumberland Gap, but too late. Morgan had slipped in in his absence.

So these generals were playing a game of "corners." None of them had any force to accomplish any definite results, yet each regarded his position of great importance to those armies which would soon make the region a battle ground. Morgan held Cumberland Gap. Smith held Knoxville, Cleveland, and Chattanooga. Mitchel, the Sequatchee Valley. Mitchel believed that the enemy were then beginning to concentrate at Chattanooga, and would endeavor to occupy the valley. Colonel Sill, in command there, telegraphed him on the 21st June that the enemy were crossing the Tennessee in force, and Mitchel put some faith in the report. He did not think so great a delay would take place on the part

of the enemy as really occurred. The enemy were very slow ; had this not been the case the disasters that occurred later would have occurred then, for Mitchel had no force to meet the army that afterwards marched north through Chattanooga.

So the manœuvring went on, with one report and one move after another, but the great armies destined to occupy the country, both Union and Confederate, were still absent. Whichever came first would have great advantage, but neither came. Mitchel's anxiety was very great. The game became obnoxious to him, and he wished to get away. On June 21st he telegraphed the Secretary of War : —

I am with difficulty maintaining my position before Chattanooga. My main force is at Jasper. We thus hold the mountain region bordering on the Tennessee and upon the railroad. I hope to be able to maintain my position until reinforcements arrive. I respectfully solicit more active duty.

The reinforcements referred to were the troops coming under General Buell. The Secretary did not understand this when he replied : —

WASHINGTON, *June 21st.*

I would gladly send you reinforcements if we had them to spare, but the protracted operations before Richmond require (in the President's opinion) that every disposable force should go to General McClellan. It would also gratify me very much to have your earnest military genius employed entirely in the East, but the President regards the advance on East Tennessee as only second in importance to Richmond, and that you cannot be safely withdrawn from that field ; so that the Department cannot gratify your wishes.

.

WASHINGTON, June 5, 1862.

MY DEAR GENERAL:— . . . Most heartily do I wish you were in a position where your abilities and energies could be utilized more properly. You have done so much; you ought to be permitted to do more. If I could decide the question you would come here at once, and be put where you could *do most*.¹ . . .

Your friend,

S. P. CHASE.

In June, General Mitchel's family visited him at Huntsville. During their stay there his letters, of course, ceased.

¹ In the original these words are underscored.

XV.

GENERAL BUELL AT HUNTSVILLE.

GENERAL BUELL arrived at Huntsville on the 29th of June, 1862. Mitchel's army of some eighteen thousand men had held the country north of the Tennessee River for several months, and with the addition of General Buell's army there was sufficient force to at least occupy and hold the region about Chattanooga, Cleveland, and Dalton. General Buell brought his maps to Mitchel's headquarters, a pine table was placed under a tree, and the two sat down to discuss the situation. The troops at hand, transportation, bridges, the field of operation, were all runned over for three or four hours by the two commanders, the one having the full power for decision, the other being simply adviser. General Buell was as usual uncommunicative. General Mitchel, if he saw a point of vantage or weakness, could no more have refrained from calling General Buell's attention to it than he could sit down and wait for the war to be over. At last General Buell folded up his maps and withdrew, without any decision being reached.

The next day the consultation was renewed at General Buell's headquarters, and the next, for three successive days. On the results of the interview hung activity or delay, and on these hung either success or disaster. From the beginning General

Mitchel counselled an immediate advance. During the whole of the interview, urged by what he believed to be the importance of such an advance, he pleaded with General Buell for a quick occupation of the territory east, in which there was then but a trifling Confederate force.

At last Mitchel induced Buell to consent to go to Bridgeport with him for the purpose of looking over the ground. "I will have a train ready for you to-morrow morning at seven o'clock," he said. Buell declined to go so soon.

Mitchel went to his tent and wrote the following despatch to the Secretary of War:—

Finding it impossible to serve my country longer under my present commander, I have to-day forwarded, through him, my unconditional resignation, and respectfully solicit leave of absence for twenty days.¹

A copy of this despatch he sent to General Buell.

Two documents, written within a day or two of each other, the one by General Buell and the other by General Mitchel, will show how differently two men can look upon the same subject. The occasion

¹ When General Buell arrived at Huntsville he issued an order forbidding the use of army teams for the transportation of cotton. General Mitchel thought that it would have been more courteous to him if Buell had conferred with him before issuing the order, or had informed him of his intention, though acknowledging General Buell's right to act as he did in the premises. This has been assigned as the cause of Mitchel's leaving Buell's command. But after the order the two generals were in consultation over the military situation for several days. There was never such a thing as a quarrel between them. Indeed, General Mitchel wrote from Shelbyville, a few months before, referring to General Buell, "he has treated me with marked respect and attention." Before leaving Huntsville Mitchel called upon Buell at his headquarters to take leave, and they parted without a word of reproach on either side.

of the writing of General Buell's document was that General Halleck had telegraphed him that the President was dissatisfied with his delay at moving forward. General Mitchel's document was written to the Secretary of War, who called upon him for his plan of campaign. General Buell's is first given.

BUELL TO HALLECK.

HUNTSVILLE, *July 11, 1862.*

MAJ. GEN. H. W. HALLECK: — I appreciate the importance of moving promptly, though it is idle to suppose that the enemy, with his railroad communications complete, and our lines difficult and broken, will not always be able to anticipate us at any important point. I regret that it is necessary to explain the circumstances which make my progress seem slow, though it perhaps is not to be expected that they should be otherwise understood.

I understand what you have given me to do, and if permitted I expect to accomplish it without any unnecessary delay, and in such a manner as to neither jeopardize my army or its honor, nor trifle with loyal citizens betrayed to the vengeance of their enemies by a promised protection and a hurried abandonment. The advance on Chattanooga must be made with the means of acting in force, otherwise it will fail or prove a profitless and transient prize. The railroad communication as far as Stevenson must be securely established. From that point the transportation must first be by wagons for twenty-five miles. The river must be crossed by a pontoon bridge, which I am now preparing. It is not possible to establish the requisite communications by any means of ferrying which we can provide. These arrangements are being pushed forward as industriously as possible. The troops are moving forward to the terminus of the railroad without unnecessary delay, and one division has already arrived there. It ought to be borne in mind that they have had a march of about two hundred miles to make, with a large train, in hot weather, crossing

a wide river by a ferry. The report¹ of General Mitchel led me to expect that the Chattanooga road would be finished by the first of this month. I do not censure him for being mistaken. I have since doubled the force upon it, and it cannot be finished before next Monday. The gap of twenty-two miles on the Decatur road, the one we are dependent upon for supplies, has from the character of the road made it more expeditious to take another route forty miles longer. And it requires every wagon that can possibly be spared to keep the troops from starving, and at that we are living from day to day. We consume of provisions alone about one hundred thousand pounds daily, which with our animals in their present condition it requires about sixty wagons to carry. The trip coming and going cannot be made going and coming in less than five days. Three hundred and fifty wagons are required to haul provisions alone over this gap; to haul forage over the same distance even at half rations would require seven hundred wagons more. We are running about five hundred wagons, managing with great difficulty to subsist our animals mainly upon the country, already nearly exhausted of supplies. It will be seen that we cannot advance beyond Stevenson until the road is completed, so as to release wagons now absolutely required in the rear. Three mills are getting out lumber for boats, which will be furnished as soon as possible. These are matters of fact which cannot be got rid of by sophistry or fair promises, however gratifying. The dissatisfaction of the President pains me exceedingly. I request that this dispatch may be communicated to him.² D. C. BUELL, *Major-General*.

¹ General Mitchel had reported it as his opinion that this could be effected within the time specified. But had he deemed the matter essential, and had remained in the west, would probably have taken personal supervision of the work, as he had done at Murfreesboro.

² General Buell, reviewing the evidence before the military commission to inquire into his operations at this time, makes a carefully prepared statement of the events of this period. It will be found on Page 30, Pt. 1, Vol. xvi., Series 1, Official Records of the War Department.

MITCHEL.

General Mitchel
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GENERAL BUELL AT HUNTSVILLE.

MITCHEL TO STANTON.

WILLARD'S HOTEL, WASHINGTON, D. C.

HON. E. M. STANTON, *Sec. of War.*

SIR: — At your request I present herewith a
line of a plan of campaign recently presented
General Buell after his arrival at Huntsville.

The railways from Memphis to Decatur, from
to Decatur, from Decatur to Stevenson, and from
to Stevenson, are all nearly completed. Making
or Bridgeport a principal depot for supplies,
forage, ammunition, etc., could be obtained
Memphis, Columbus, or Nashville. General B
consisting of five divisions, will number, I sh
forty thousand effective men. I proposed to
principal column through Chattanooga to attack
Dalton or Cleveland) the great line of railw
from Atlanta through Knoxville to Richmond.
of ten thousand men across the river at Bellef
advance upon Rome; a third column, having
McMinnville, and numbering about ten thousa
the mountains and strike the railway about tw
south of Knoxville; while a fourth body of tr
penetrate Eastern Tennessee through Cumbe
In case either of these columns should achiev
would almost certainly insure the success of al
If, for example, Rome were taken by our troo
compel the enemy to abandon Chattanooga, and
region occupied by the railways leading from
and Dalton to the main stem of the Memphis a
ton road.

If Chattanooga should fall, and our column
vance upon Dalton, it would co-operate direct
force marching upon Rome. If Knoxville shou
the enemy would find it impossible to retreat t
without danger of being captured by our troop
land, or Dalton, or Rome. Should the entire a
vanced against a single point, as for example C
the enemy would then probably concentrate

force, fortify his position until he could be dislodged, a task extremely difficult by the face of the enemy. At last, about eight thousand men in the immediate neighborhood on the opposite side of the river offered considerable resistance to the advance of General Buell the capture of Chattanooga. From the line of the railroad to Chattanooga, and would have built a bridge across the Tennessee River for safety and certainty. I had instructed one boat to destroy the railroad, and to destroy all the boats in the river. The last week, by my orders, the boats of Stevenson were set to work, and were using these mills day and night, and had been cut in a few days. I had ordered to build all the boats in two weeks, and they have been finished in six days. I had ordered artillery, and cavalry, and infantry, and cars to be placed upon the river. With such a force, the war can be furnished to Chattanooga without difficulty.

I suppose the column at Rome would be furnished with provisions to move without camp equipment, and wagons except what would be necessary for provisions and cooking utensils. This column could fall back upon the navigable roads to unite with the army at Chattanooga. In like manner the army would move with as little

¹ This afterwards occurred.
battle of Missionary Ridge.

ten days' rations. In case of necessity the army has a sufficient supply train to furnish additional provisions to either of these columns.

Should the main body be attacked at Chattanooga by a superior force, the nature of the country is such as to admit of a very strong defence against greatly superior numbers, while it would be a matter of great danger to the enemy to throw forward a heavy force from their base of operations, while they were menaced on the right and on the left.

I should think it almost impossible that there could be any failure in this plan of campaign. It might all have been accomplished a month ago. I think on that day Chattanooga might have been permanently occupied, for on this day one month ago my troops from the north side of the river drove the enemy from the town of Chattanooga. I think now the whole work can be accomplished in ten days, and that a series of successes extending from Atlanta in Georgia throughout Eastern Tennessee up to North Carolina might be achieved in rapid succession.

I do not know what disposition has been made of the troops recently before Corinth, under the command of General Halleck; certainly this entire army is not now required along the line of the Memphis and Charleston Railroad; and I have supposed some strong point fifty or sixty miles south of Corinth would be strongly fortified and garrisoned with a force sufficient to render it impossible to reduce this work without a siege train.

It is not difficult to defend the bridges of a railway against roving bands of infantry or cavalry. The bridge guards along the railways, under my charge, constructed little wooden forts¹ of various forms, all of such strength as to increase their power of resistance in a tenfold ratio. These little works now extend for hundreds of miles along the railways of middle Tennessee and northern Alabama.

If, therefore, a fortress were constructed for the defence of so much of the Memphis and Charleston Railroad as

¹ General Sherman afterwards found these forts invaluable.

Probably no more remarkable instance is to be found, of two generals writing unknown to each other in a condensed form, arguments with reference to an important turning-point of history, with the first general of the age who never knew the views of at least one of them, more than twenty years afterwards to sum up the case.

Mitchel received no reply to his telegram for several days, when the Secretary of War ordered him to report at Washington without an hour's delay.

his troops according to the methods prescribed by the best writers, and in a few hours lost eighteen thousand men, one hundred and twenty standards, all his baggage, and all his artillery." — "War of the Succession in Spain," *Edinburgh Review*, January, 1833.

XVI.

WAITING ORDERS.

THE date of General Mitchel's arrival marked the beginning of a series of disasters to the government troops, which did not end for a year. The President had assumed to act upon his prerogative as commander-in-chief of the army and navy of the United States in March previous, and had really controlled the movements of the armies of Virginia. The army of the Shenandoah Valley, under Banks, had been driven back by Stonewall Jackson, who had then formed a junction with Lee, and together they had driven McClellan from before Richmond to Harrison's Landing.

There seems to have been three different objects which Mr. Lincoln regarded of paramount importance. First, the capture of Richmond; second, the occupation of East Tennessee; third, the opening of the Mississippi River. When Mitchel arrived at Washington he found that his despatch from Huntsville, asking to be relieved from duty there, was not the prime mover of his going. Mr. Lincoln had given up trying to use him in the advance upon East Tennessee (which he "regarded second in importance only to the operations against Richmond"), and had resolved to place him in a field entirely new. The President had planned an expedition down the Mississippi River. He had selected the

troops which were to be sent to the front had been made except to send him to command Mr. Lincoln offered. And this was the reason why he had been ordered to the capital.

A different arrangement was made by General Chase and Mr. Stanton. General Mitchel by these cabinet members in the extreme. Mr. Stanton put his hand on Mitchel's shoulder, and rather see him commander-in-chief. Mr. Chase told him this in a demonstrative manner. The object was to find any man among them at that time, who would act with a firm hand, and with promptness and courage. Both these assurances at least, proved his sincerity in General Mitchel which did not mean Mitchel lived.

There was then before the cabinet the important question of the removal of McClellan's army from Harrisburg. The question of McClellan's removal. Chase's notes on these points are as follows:

The possibility of the loss of the Army of the Potomac (McClellan's) convinced me and convinced me that the Army of the Potomac needed a more active officer. We proposed to give Pope to the James and give Mitchel to the Army in front of Washington, while the armies of Banks, Fremont, and Sigel called the Army of Virginia, and the Army of the Shenandoah.

¹ Shucker's *Life of Chase*

The President was not then prepared for such a sweeping change, and held to his original intention of using General Mitchel on the Mississippi. The plan, however, was defeated by a sudden decision of Mr. Lincoln to shift the responsibility of future operations from his own shoulders by appointing a Commander-in-chief. He telegraphed to General Halleck, then at Corinth, to come to Washington.

Of the many officers who had cause to rue this decision of the President, perhaps none had more at stake than General Mitchel. He held the confidence ¹

¹ General Mitchel had been in Washington but a few days when General Buell sent a telegram to General Halleck, in which he referred to Mitchel's army as follows: "As a whole I have found the force in a state of demoralization and confusion. I am obliged to confess also that the accounts of the discipline of portions of the troops are not gratifying. I am trying to get them straight." General Halleck at once conveyed Buell's information to the War Department. "He reports the force under General Mitchel in a state of utter disorganization." And again, in speaking to the Secretary of the failure to pass locomotive and cars at Decatur: "I understand that General Mitchel has been ordered to Washington. He should be required to give an account of this matter. These delays and neglect of duty have greatly embarrassed me in supplying General Buell's forces *en route* against Chattanooga."

If hard service over an immense territory will disorganize troops, Mitchel's force was disorganized. There was hardly a corps in it that had not been marched hither and thither till it is quite likely it was disorganized, and in confusion. As to pillage, no army ever yet entered an enemy's country without it, and a brighter day must come for humanity before it will be possible to make aggressive warfare without more or less of this one of war's horrors.

After General Mitchel left Huntsville, Gen. L. H. Rousseau assumed command of his division. Gen. Alex. McD. McCook, in his official report of the battle of Perryville, says: "The battle was principally fought by Rousseau's division, and if there are or ever were better soldiers than the old troops engaged, I have neither seen nor read of them." General Rousseau, passing through New York in the spring of 1863, visited General Mitchel's family. He kindly remarked that the special efficiency of the third division was entirely due to the training it had received from General Mitchel.

of the President, the Secretary of War, the Secretary of the Treasury. It was a time when the nation needed not only a man to lead an important army, but men to lead armies. They wished for a certain aggressive enterprise such as Mitchel had displayed in a very limited field in the West. There were two important armies in Virginia, and two in the West. Of all the leaders upon whom they could call, only one (Grant) had at that time displayed the required enterprise.

The removal of General Halleck to Washington relieved General Grant from the unpleasant situation he had long occupied at Corinth;¹ and resulted in a transfer of the evidences of Halleck's displeasure from Grant to Mitchel. Mitchel was ignorant of the disposition of the new commander. He had received only marks of confidence in Washington, and was thoroughly unconscious of ever having offended the General-in-chief. Neither had Halleck ever sent him a communication finding any fault with him. All such had gone to others, and these had never communicated them to Mitchel.

Of course, as soon as President Lincoln had made the appointment of a General-in-chief, General Mitchel was obliged to await the arrival of that officer. When he arrived, Mitchel was directed by the President to report to him, and from that time for a week waited for an interview with General Halleck without being accorded one.

¹ In his Memoirs, Grant, in speaking of this period, says: "I had repeatedly asked between the fall of Donaldson and the evacuation of Corinth to be relieved from duty under Halleck; but all my applications were refused until the occupation of the town. I then obtained permission to leave the department, but General Sherman happened to call on me as I was about starting, and urged me so strongly not to think of going, that I concluded to remain."

A certain antagonism to General Mitchel had sprung up among some of the commanders in the West, at the very commencement of his military career. It began with his intended move into East Tennessee, in October, 1861. It gathered strength when, starting from the rear of McCook's division in February, 1862, he took the advance as next in rank to the department commander. When he was assigned the duty of protecting Nashville, and the other commanders of the Army of the Ohio proceeded to Corinth, it seemed as though his restlessness could give no further offence. But suddenly he fell upon Huntsville, and within a month from his separation from the Army of the Ohio he had been made a Major-General. Then followed his communications direct with the War Department, as ordered by Secretary Stanton, and finally the order to report at Washington, when it was believed that he might return, assigned to an important command. It was to be expected that all this would spread discontent, and that the call to the capital might cause serious disquietude in the minds even of the most influential commanders.

This antagonism came partly from the fact that Mitchel was not understood. His desire to go forward was set down as evidence of inordinate ambition; his congratulatory orders to his troops, dictated by an ardent nature, and intended to inspire them with some of his own fire, were attributed to a desire to manufacture a reputation: while his correspondence with the Secretary of War might easily be interpreted as intended for a means to promotion.

This spirit of opposition took shape when Mitchel was ordered to Washington. Colonel Jesse Norton,

an officer of Mitchel's own division, whom he had arrested for being absent from his command when his presence was required, (Norton had gone fishing,) followed him to Washington, scattering charges as he proceeded. He first stopped at Louisville, where he visited a newspaper office and published his first report; then Cincinnati, and other cities by the way, till by the time he reached the capital, General Mitchel had been defamed a pillager and a cotton-stealer from one end of the land to another.¹

All this was a wanton infraction of military discipline. The army regulations prescribe the channel through which all complaints shall be made. They must go from regimental to brigade headquarters, then to division headquarters, and so on to the War Department. When Norton reached Washington, the Secretary of War ordered General Wadsworth commanding there to arrest him and confine him in the Old Capitol prison. Hearing of this order, the accuser vanished. What became of him afterwards

¹ There is neither space nor inclination to enter upon an elaborate discussion of the conspiracy concocted at this time to ruin General Mitchel. The following is clipped from the biography of General Mitchel in *Ohio during the War*.

"Meanwhile a swarm of slanders had been started by the busy enemies he had left behind him in Buell's army. Presently a newspaper attack appeared, declaring in mysterious vagueness that Mitchel had been summoned to Washington to answer the gravest charges. It pronounced his conduct 'not only injurious to the government, but disgraceful to humanity,' declared that he had 'perpetrated deeds of cruelty and guilt the bare narration of which makes the heart sick.' Demanded 'swift justice,' hoped 'for the country's sake there would be no delay and no clemency,' and reached its climax in pronouncing the foremost astronomer of the country, and the hero of the North Alabama Campaign, an 'epauletted miscreant.' The organ of these slanders was a newspaper, remarkable partly for decayed genius, partly for mediocre but malignant treason — *The Louisville Journal*."

is not known to the writer. How he received permission to leave his command for the purpose of making this tour, why he was not court-martialled upon his return, are matters which will probably remain among the secrets of history.

At last Mitchel was permitted to see the man who could either make or mar his future career, and who, the result showed, had made up his mind to mar it. And now that they are face to face, will not Halleck reiterate the complaints he had made to the War Department? Considering the fault the Commander-in-chief had found with Mitchel, one would suppose that he would ask him to explain the acts of which he had complained. By no means: not a word about the Decatur bridge, not a word about the failure to pass rolling stock at the same point. And what is the topic of conversation between these two generals, at the most important crisis of the nation's history? Unfortunately the Commander-in-chief is afflicted with hay-fever, and all the time accorded to his subordinate was devoted to his list of remedies and his efforts to recover from the unpleasant disease.

There is something painful in all this, even after a quarter of a century has passed away, and both men are in their graves. Mitchel did not understand it. "He kept me waiting a week," he said shortly after the interview to a friend in New York, "and then spent the time telling me of his hay-fever. Hay-fever! when the enemy are thundering at our gates!"

At last it became known to some of Mitchel's friends that when Halleck was handed the order appointing Mitchel to the command of the expedition down the Mississippi River, he refused to sign it.

And now, after all the delay of Buell's army, and

the responsibility cast upon Mitchel for being instrumental in that delay, by his "foolish burning of bridges," and his neglect to otherwise facilitate the advance, what is this we come upon from the pen of the General-in-chief? In 1863, in passing upon the proceedings of the court of inquiry to examine into General Buell's operations in Kentucky and Tennessee at the time of which we speak, General Halleck writes: —

So much of the report as states that General Buell's march on Chattanooga was delayed by the repairs of the Memphis and Charleston railroad is incorrect. General Buell had no other line of supply then than this road till he reached Decatur and connected with Nashville. General Buell was not delayed an hour beyond what he himself deemed necessary to secure supplies. Moreover, his lines of supply were those he himself selected. Indeed, there were no others from which to select. The fault here as elsewhere was having too large supply trains, and in not living more upon the country.

It was not till 1863 that General Halleck, as Commander-in-chief, discovered that General Buell had not been delayed after all. And it is only by the publication of the official records of the War Department that it has been possible to gather up these points and present them together. But before General Halleck came to this change of mind with reference to General Buell's slow movements towards Chattanooga, and General Mitchel's responsibility in the matter, it was too late to do him justice, even had Halleck's opinion of Mitchel's responsibility changed with his opinion that there had been no delay.

Mitchel obtained leave to go to New York and await orders. There he remained nearly all summer. On the 31st of August he wrote from New York: —

TO MR. OLCOTT.

I am here waiting orders. I would gladly quit a service for which I am in no way fitted, but my resignation is opposed by so many high in power and influence, that I deem it my duty to withhold it for the present. The President, Secretary of War, and Secretary of the Treasury united in urging that a very important command should be given me, but General Halleck said "No!" and his veto ends the matter.

The only redeeming, pleasant feature in all this time of trouble was the action of Secretary Chase, or rather his sympathy, for he had then no power to act. He stood by General Mitchel through it all; and when some of General Mitchel's friends wrote him in reference to the slanderous statements with which newspapers were filled, that he might have authority for denying all allegations to others, he replied as follows: —

August 21, 1862.

I know of no charge against General Mitchel which should create the slightest suspicion affecting his honor and integrity. I have the most entire respect for him and confidence in him, and entertain no doubts, had he been properly supported in either of the movements begun by him towards East Tennessee, that the loyalists of that region would now have been an impregnable barrier against rebel movements from East and West over their great railroad forming their main line of communications.

Even Secretary Chase became depressed. He had said constantly to Mitchel: "Wait: the time will surely come when your services will be required." But it was a period of gloom that tried the most hopeful. In August he wrote General Mitchel the following brief note: —

DEAR GENERAL, — No light yet. When will the dawn appear? I wish I could tell. S. P. CHASE.